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THE  
FLORAL WORLD  
AND  
GARDEN GUIDE.

EDITED  
BY  
SHIRLEY HIBBERD, ESQ., F.R.H.S.

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# THE FLORAL WORLD

AND

## GARDEN GUIDE.

### NEW SHOW PANSIES.

(With Coloured Illustration of Five Varieties.)



E avail ourselves this month of the opportunity of presenting illustrations of five new show pansies, selected from the seed-bed of Mr. Hooper, Widcomb Hill, Bath, who is now one of the principal raisers and trade growers of these showy flowers. In introducing these beautiful varieties to the notice of our readers, we have no desire to unduly extol the merits of the pansy, or to recommend its cultivation in preference to many other flowers. But it may be said with safety that pansies are especially deserving the attention of those amateurs who have gardens of limited dimensions, and who do not possess the convenience of a heated atmosphere. A large collection can be grown in a frame or pit of moderate size, and the plants are hardy enough to withstand the effects of a severe winter, with no further protection than that afforded by a covering of long litter or mats over the glass. Damp is the greatest enemy to pansies; and if the soil is not kept too wet, and the foliage is maintained in a moderately dry state, there is not much danger of their suffering from frost. In favourable localities they may be wintered safely in the open beds, provided the winter is not very severe; but the risks are so great, that it is not prudent to attempt to winter a good collection without affording some protection.

The names and descriptions of the varieties here portrayed are as follows:—

No. 1. *Shirley Hibberd*.—Dark self, rich cobalt blue, shading to deep purple; eye yellow; very large and massive, and of grand form.

No. 2. *Golden Queen of England*.—Yellow self; deep golden yellow, with maroon blotch on the lower petals, and small blotch on side petals; large, of fine form, and well finished.

No. 3. *Mrs. Felton*.—White self, with dense blotches of deep purple; very large, and superbly finished; fine and attractive.

No. 4. *Richard Dean*.—Yellow ground; rich yellow, belted with

light bronzy red, and dark blotch ; very stout, and of splendid form ; a neat and attractive flower.

No. 5. *Beauty of Bath*.—Yellow ground ; deep yellow, with well-defined belt of deep purple, and dark blotch ; fine form, and beautifully finished.

The above-mentioned varieties will, no doubt, be distributed in the course of the forthcoming season, and may be depended upon as possessing considerable merit. Of the varieties which were distributed in the spring of last year, the following may be considered the most desirable in their respective classes :—

*Black Bess*, dark self, medium size, top jet black, under petals blackish purple ; *Black Gem*, rich dark self, fine and distinct ; *Cyril*, white self, of fine form and quality ; *Ebor*, deep golden yellow, belted with dark bronze ; *Kate Lawden*, cream white, dark purple belting ; *Luna*, light yellow, dark purple belting, dense blotch ; *Mabel*, creamy white, belted with light purple, dense blotch ; *Mrs. Horsburgh*, golden yellow self, of fine form ; *Miss Adamson*, pure white, narrow belting of bluish purple, first-rate ; *Mrs. Turner*, white self, of good form and substance, large solid blotch, first-class ; *Prince of Wales*, deep yellow, with bronzy purple belting ; *Queen of Buffs*, yellow, belted with bright buff, smooth and fine ; *Rising Sun*, deep yellow belted with crimson, fine ; *Toison d'Or*, rich golden yellow self, of fine form ; *Tom White*, deep golden yellow, bronzy purple belting, dense blotch ; *Wm. Young*, yellow, with broad bronzy purple belting, fine.

## THE CULTIVATION OF SHOW PANSIES.

BY J. JAMES,

Head Gardener, Redlees, Isleworth, W.



ONE of my favourite flowers being the Pansy, I gladly comply with the request to offer a few hints on the management of a general collection, and in doing so, it will be necessary to deal rather fully with the several details so as to make them as useful as possible to the amateur who may happen to take them in hand for the first time. We will commence by describing the best plan of raising a stock quickly.

**SEED-SAVING AND SEED-SOWING.**—Increasing the stock by seed is very easy, but it ought only to be practised where there is plenty of time and space, with the idea of raising kinds superior in colour or form, or a combination of both, to those already in cultivation. It is certainly a very good plan to save a few seeds when a stock of plants is wanted to be raised quickly for the borders, and the stock is too limited to allow of its being done by means of cuttings. Difference of opinion exists as to the best time of sowing the seed. But after many years' practice, I have found the spring

and summer-time to be the most suitable seasons. The plants have then plenty of time to become strong before winter sets in, and are thus able to withstand the rough weather better. The seed-sowing is simple enough, and managed in much the same way as other hardy plants. If the quantity of seed is considerable, and frame room limited, mark out a bed in a shady part of the garden, and after making the surface soil fit for the reception of the seed, it can be sown and covered with a sprinkling of fine soil—old soil from the potting-bench is first-rate. Supposing a bed cannot be made up in the shade, a few branches of evergreens stuck in will answer every purpose, as far as regards shade. It will be as well to say, that during dry weather it will be necessary to keep the bed moist, or the seeds will not vegetate; even if they do, the young plants will be dried up before they can make their appearance above the surface. With a limited quantity of choice seed, the safest way will be to sow it in a pan or shallow box, and place it in a cold frame. A mixture of loam, leaf-mould, and sand, is the most suitable for filling the pans. Prick off the young plants, whether in the pans, or in beds out of doors, directly they are large enough to handle. For if they remain crowded together for any length of time, they will be drawn up weak and spindly. The best way to deal with them at this stage is to select a border or piece of ground where the subsoil is rather dry, and, if poor, prick in a little rotten dung or leaf-mould. The plants should be pricked out in rows fifteen inches apart, and nine inches in the rows. This gives room to run the hoe through them, if necessary, to keep the weeds down. A sharp look-out must be kept for slugs, more especially in damp showery weather; they are especially fond of the foliage when young and tender, and will soon clear a moderate-sized bed of plants. Evening and morning are the best times to look for them. A few branches of Scotch or spruce fir, stuck amongst them in sharp weather, will be useful in preventing too sudden changes and rapid thaws acting upon the plants. This part of the subject is necessary from me; for any one endowed with an ordinary amount of intelligence will know when they flower; discard all the worst, and plant out the middling ones in the mixed border, if required, and increase the stock of the very best by cuttings, supposing the raiser to have any worth that trouble. Unless under exceptional circumstances, never propagate seedlings unless they are as good or better than the best of the existing kinds, for it costs about as much time and labour to grow bad kinds as good ones.

**SELECTING AND STRIKING CUTTINGS.**—Begin this work early in June, and strike them all under cover. I have a frame in a partially-shaded corner, in which a bed is made up annually for this purpose, about a foot or nine inches in depth, and which consists of loam with plenty of leaf-mould and silver sand, with a thin layer of sand over the surface, to dibble the cuttings in. The soil in the beds is made rather firm, by beating it with the thick part of the spade. It is impossible to fasten the cuttings properly if the surface of the bed is loose; and unless they are put in firmly a large proportion will not strike. This is applicable to other plants besides pansies, even if

they have the good quality of being free-rooting. The bed should have a moderate watering through a fine rose, to settle the soil before the cuttings are put in.

Now for a few words about the selection of the cuttings, for upon this, in a great measure, depends the cultivator's success. The best cuttings are those taken from the moderate-sized side-shoots that are clean and healthy. The main shoots, which have been flowering and growing freely all the spring, will be found, on examination, to be quite hollow, and are not suitable for propagating. The best, as I have said before, are stout little side-shoots that are about two or three inches long. Cuttings of this description will generally have three pairs of leaves, and, if very short-jointed, four. The cutting should be cut clean through the bottom joint. Use a sharp knife, to prevent its being bruised, and the lower or two lower pairs of leaves, as the case may be, trimmed off.

The simplest way to insert them, and at the same time to prevent confusion, is to begin at the left-hand side of the frame, and dibble them in rows about four inches apart. Place a tally to each variety as they are put in, to prevent mistakes happening. After the frame, is filled, or the cuttings exhausted, the bed should have a sprinkles and be shut up and shaded in bright weather. The main point is to keep the foliage fresh, without the atmosphere being sufficiently close and moist to rot the cuttings. Very little remains to be done after this beyond keeping the frame shaded and the bed sprinkled when necessary. A few days after the insertion of the cuttings, a little air must be left on through the night, and gradually increased until they can bear a little during the day, when the atmosphere is rather close and the wind still. This must go on increasing until the cuttings are rooted, when, of course, the lights can be removed altogether.

**AFTER-MANAGEMENT.**—The first matter requiring attention after the young plants are ready for removal from the frame, is to make up some beds of good compost in which to plant them. In many instances the ordinary soil is sufficiently good without any special preparation, but where it is poor, six inches of good turfy loam and a thin coat of well rotted cow-dung forked in will be the best dressing to give the ground. It is not well to make it too rich with manure. The best situation for the beds is where they will be partially shaded for a few hours through the hottest part of the day. If there is a position of this description available, choose the next best to it, and avoid hot dry corners. Dull showery weather is the most desirable in which to transplant pansies; but it is not always advisable to wait for it, as the plants may become so much crowded as to be partly spoilt before it comes. Whether the weather is wet or dry, the beds should be made moderately moist and the plants have a liberal watering a short time before their removal from the frame. This should be done as soon as they are nicely rooted, and taken up with a trowel, to avoid their being broken and injured. The rows should be a foot or fifteen inches apart, and the plants nine inches from each other in the rows. When the planting is finished, give them a thorough watering, and



do not let them suffer for want of that element afterwards. Until the young roots begin to strike into the new soil, some means should be adopted in bright weather for shading the plants from the sun. About September they will be ready for taking up and potting.

**POT CULTURE.**—This is my principal way of growing pansies, even when I require cut flowers for exhibition. By this system, with ordinary attention, there is very little danger of losing any plants, for a proper control as regards moisture can be had over the roots at all times. We prepare a lot of three-inch pots by putting a good drainage in the bottom, and seeing that they are perfectly clean. When these are ready and the soil mixed, which should consist of three parts good turfy loam and one part decayed cow-dung and leaf-mould in equal quantities, lift the young plants with a nice little ball, and pot them at once. From the potting-shed take them to a frame, where they are to remain through the winter. Pansies are impatient of being kept in a close and stagnant atmosphere; and to avoid this, have a ventilator about six inches wide throughout the entire length of the frame, both back and front, fixed immediately under the framework which supports the sashes. By the aid of these a continual circulation of air can be maintained without the risk of the soil in the pots becoming too wet during heavy rains, or when the plants are in bloom of the flowers being knocked. Keep the ventilators rather close for a few days after the plants are first taken up, and then plenty of air should be admitted at all times, excepting during very boisterous or frosty weather.

With proper care, the pots will be full of roots in February, which is the time for transferring them to their blooming pots. Use five or six inch, according to the strength of the respective plants, but the last is the principal size employed here; the compost being the same as that used at the first potting. When they are nicely established, the sashes can be drawn off altogether in favourable weather.

**WATERING.**—Although the pansy luxuriates in a cool, moist position, the plants must not be over-watered at any time, but have sufficient and no more. Avoid the use of liquid manure; they do better without it, and my belief is that the cause of many plants dying off can be attributed to the use of powerful stimulants.

**CULTURE IN BEDS.**—Turn the plants out of the three-inch pots early in the spring, in the same kind of bed as that recommended for the young plants when first struck. And if the flowers are required for exhibition, screen them from the sun, and give water if the weather should happen to be dry.

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## NEW VEGETABLES.

BY GEORGE GORDON.



MOST of the leading seedsmen at this season of the year are issuing their lists of new flowers and vegetables, and as every one will shortly be purchasing their seeds for the forthcoming season, it will be of some assistance to those who speculate in new vegetables if a few comments are made on those likely to be the most valuable.

Messrs. Sutton and Sons, the well-known seedsmen, of Reading, offer a new pea, under the name of *Emerald Gem*, which they state, after several years' trial, to be as early as *Ringleader* or *First Crop*, which is well-known to be the earliest in cultivation, and possessing the advantages of surpassing that variety in productiveness and appearance on the table, and to be of finer flavour. It is certainly worth a trial, for any improvement in the quality of the first early peas should be accepted with thankfulness, especially by those who have a predilection for rich sugary peas. McLean's *Best of All*, which was distributed a short time since by the above-mentioned firm as one of the best for main crops, has proved during the past season to well deserve a place in the most select collection, for it is productive, handsome, and of fine flavour, and, as it only attains a height of three feet, it is well adapted for suburban localities, where sticks are scarce. Several authorities speak highly of Messrs. Sutton's new potato *Hundredfold Fluke*, which is said to be a heavy cropper, and of good shape and fine flavour.

Messrs. Veitch and Sons, Royal Exotic Nursery, Chelsea, offer a new beet, under the name of the *Chelsea Beet*, which is a decided acquisition. The roots are of medium size, perfectly symmetrical, and of a deep rich crimson shade. The flower is also exceedingly good, and when exhibited by Messrs. Veitch two years since, in company with other leading kinds, it was considered one of the best flavoured beets in existence. Celery, *Major Clarke's Fine Solid Red*, offered by the same firm, is a fine type of red celery, and one that can be highly recommended for table use. Some examples exhibited at South Kensington in December were exceedingly good. It is of medium size, very solid, and of the most excellent flavour. In support of the opinion here expressed, it is worthy of mention that respecting it Mr. Barron, Superintendent of the Royal Horticultural Society's Gardens, at South Kensington and Chiswick, says:—"I have grown *Major Clarke's Red Celery* frequently at Chiswick, and it is in my opinion the best red celery that I know of. The plant is of medium growth, not so tall as the *Manchester Red*, but taller than the *Incomparable White*. It is of the same habit as the latter—i.e., robust and compact, forming very solid hearts, which blanch very easily. The leaves are small, deeply serrated, and of a deep green. It is very crisp, and of excellent flavour, not a large-growing show variety, but an extremely useful reliable sort, which will nearly always turn out well. As a companion to the above, *Veitch's Silver White* is worthy of mention. It is solid and crisp, and possesses a

fine flavour and hardy constitution. This is not a new variety, as it has been in cultivation several years, and it can therefore be all the more heartily commended. There are several types of the *Batavian Endive* in cultivation, some with leaves not much broader than the common dandelion, and of a very indifferent flavour, whilst others, like *Fraser's Improved Broad Leaved*, have broad leaves, and are when well blanched of good flavour. It may be assumed that the greater the breadth of the leaf the finer the flavour when blanched, and the nearer the approach to a well blanched cos lettuce; and therefore the *Improved Round Leaved Batavian* may be considered a welcome addition. This variety is said to have much broader leaves than the broadest of the *Batavian* types, and a more compact habit. It is certainly well worth a trial by those who grow endive for winter salading, and to me it appears difficult to have a salad worthy of the name without a plenty of good endive. This also is in the hands of Messrs. J. Veitch and Sons.

New peas are plentiful this season, and Messrs. Hurst and Sons, Leadenhall Street, E.C., offer a set of four varieties, raised by Mr. Laxton, and which have been selected from the collection sent out for trial last season. They are:—*William the First*, a dwarf wrinkled marrow, of excellent flavour and appearance; the pods are handsome, and well filled. *Popular* is recommended as a useful variety for main crops, the pods being large and well-filled, and the peas of a good colour and flavour when cooked. *Omega* claims attention as a late pea, and may be described as a dwarf *Ne Plus Ultra*; the usual height is thirty inches, and although sticks are necessary the expense will be trifling, as very short sticks will suffice. The last on the list is *Superlative*, which is remarkable for the size of the pods only, and is not desirable for small gardens, as the pods, although large, are by no means well filled.

Of new broccolis, *Cooling's Matchless*, in the hands of Mr. Cooling, of Bath, and *Watts' Excelsior*, in the hands of Messrs. T. Watts and Son, 56, Gold Street, Northampton, are both first-class varieties; they are large, of good colour, and in flavour very excellent. Samples of the former, exhibited last spring at South Kensington, were of gigantic proportions, and, as regards colour and appearance, were as near perfection as they possibly could be.

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## STRELITZIA REGINA.

BY WILLIAM COLE,

Head Gardener, Ealing Park.



THIS fine old plant, notwithstanding its interesting and attractive character when in bloom, is but little known, and it is a rare occurrence to meet with it in any but large gardens. At the present time, we have in the stove here a large specimen which has been in flower or some time, and will continue to produce its flowers throughout

January.

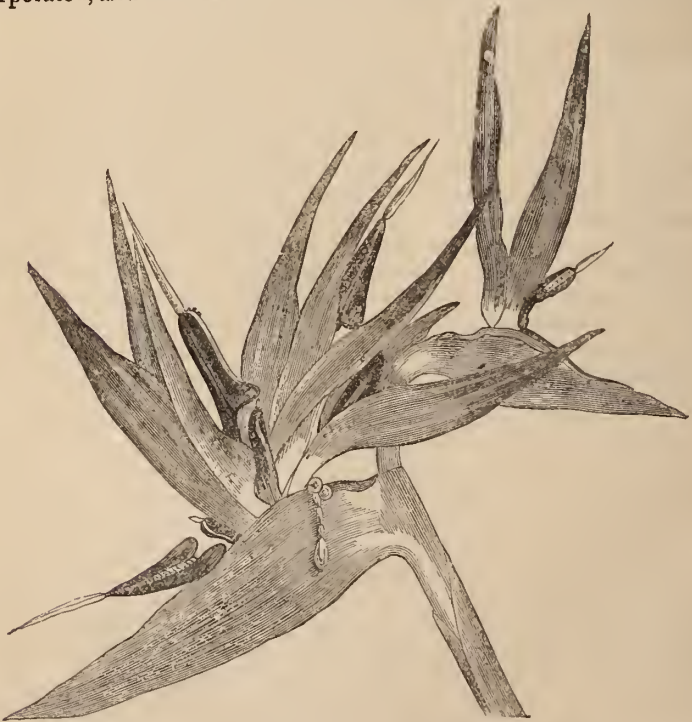
the winter ; and it has occurred to me that a few remarks upon it would be of service in inducing some of those amateurs, who possess



STRELITZIA REGINA.

a stove, to add it to their collections. The flowers, as the accompanying illustration shows, are remarkable for their curious appearance, and the colours—rich orange-red and deep blue—are very rich and striking. A well-grown specimen is also exceedingly noble in aspect, and is at all times very ornamental. The accompanying illustration of the plant conveys a fair idea of its general character.

It is very easy to manage, and requires no special system of culture to insure its remaining in healthy condition and flowering freely. It succeeds admirably when potted in compost consisting of equal parts peat and loam, which should be well incorporated, and have an addition of leaf-mould, and sharp silver sand.



STRELITZIA REGINA. (Flower-spike.)

For large specimens, the soil should be used in a lumpy state, and a



few small crocks mixed with the soil to keep it open to enable the roots to extend freely. Liberal supplies of water will be necessary when the plants are in full growth. At other times moderate supplies only will be required, and during October and November the soil should be kept rather dry, to afford the plants a season of rest, previous to pushing up their flower-spikes. The latter, it should be remembered, are produced in succession, and the flowers also expand, one or two at a time, on each spike, and consequently a supply is yielded, extending over a very considerable period.

## CHERRY CULTURE.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



THE cultivation of the choicer kind of cherries does not appear to receive that amount of attention it should do, for in many cases the trees are left pretty much to themselves, and in others the commoner kinds only are grown. There is not, perhaps, much that is really new to be said upon the subject, for all good cultivators are well agreed upon the main points in the planting and management of the trees, but a few hints just now will perhaps be of some service to many readers of the FLORAL WORLD.

In the first place, it is well that those varieties which produce fruit of good flavour, and handsome in appearance, and are, moreover, of free growth, and productive, should be selected, for it is not desirable to plant small or, in fact, larger gardens, with trees that will not amply pay for all the labour and attention necessary to keep them in proper order. In gardens of limited dimensions, which will not afford accommodation for more than a limited number of trees, preference should be given to those kinds which produce fruit suitable for the dessert; but, if possible, room should be found for a few trees of varieties such as the *Morello*, which yield fruit best adapted for culinary purposes. There are nearly two hundred varieties in cultivation, and from these I have selected the following as the best in their respective classes, and likely to maintain a succession over the longest possible period:—

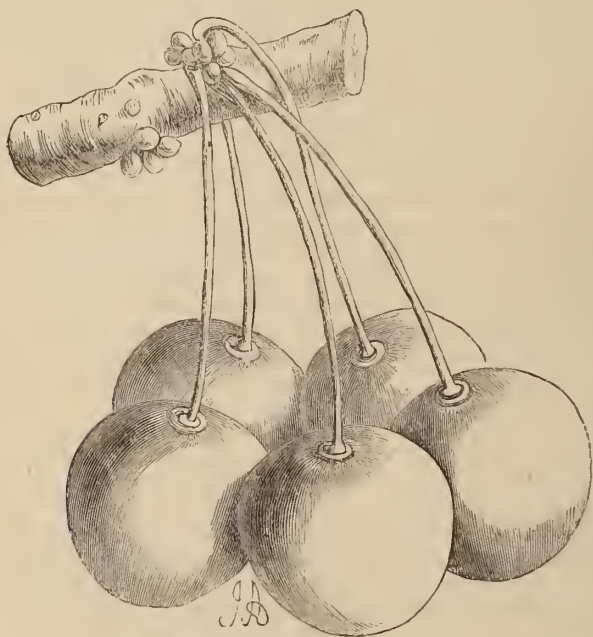
DESSERT.—Ripening in June, *Belle d' Orleans*, *Early Red Bigarreau*, *Early Purple Gean*, *Werder*, *Early Black*; ripening in July, *Black Tartarian*, *Frogmore Early Bigarreau*, *May Duke*, *Elton*, *Royal Duke*, *Joc-o-sot*, *Bigarreau*, *Mary*; ripening in August, *Florence*, *Late Bigarreau*, *Late Duke*; ripening in September, *Coe's Late Carnation*, *Büttner's Yellow*, *Bigarreau d' Hildesheim*, *Rival*.

CULINARY.—*Kentish Belle*, *Magnifique*, and *Morello*.

All the foregoing may be grown as bushes, pyramids, standards, and espaliers, or trained to a wall. They are all of excellent quality,

and where it is intended to plant two or three dozen trees, it will be preferable to select a considerable number of varieties, instead of several trees of one or two sorts.

For gardens of all sizes, either pyramidal or bush trees should have the preference, unless space can be spared for them against a wall, and in that case trees trained fan-shape are decidedly the best. Trees of either of the shapes here recommended are more under the command of the cultivator, and the fruit can also be more readily protected from the blackbirds and thrushes, which are generally very troublesome just as it is attaining maturity. The blossoms can also



be protected by means of netting, or branches of fir or evergreens hung loosely over the trees. Although trees of moderate size are recommended, no attempt should be made to keep them within very circumscribed bounds by excessive pinching. A moderate development of growth must be encouraged, for unless the trees are allowed to attain a fair size, it is very certain that the crops will be hardly worth the trouble of protecting from birds, or of gathering. On the other hand, excessive luxuriance must be guarded against. As a rule, the pyramids should not be allowed to exceed eight feet in height, and be of a proportionate width at the bottom, and the bushes should be about five feet in height, and as much in diameter at the widest part. Strong healthy trees, properly furnished with

wood should be procured, even if a slightly increased price has to be paid, so as to save a loss of time.

Cherry trees do not require much pruning at any season of the year, provided the young growth is shortened back towards the end of July. The actual time for pinching the young shoots depends in a large measure upon the seasons. In early seasons the work may be done about the middle of July, but in late seasons it will be better to defer it until the first or second week in August. Until such times as the trees have attained their full size, it will be advisable to shorten the shoots back to about half their length, and at the winter pruning such as are not required can be removed altogether. To prevent over-crowding, remove during the summer all weak or other growth not required, by pinching it off close to the base; for when the tree is overcrowded with useless wood the development of the flower-buds will be materially retarded, and the wood will not have a fair chance of becoming well ripened by the end of the season. The shoots of larger trees may be pinched back to about one-third of their length.

In all cases the spurs set with flower-buds must be carefully preserved, and both at the summer and winter pruning due care must be taken to preserve the proper outline of the tree, and also that it is equally furnished with wood on all sides.

The foregoing directions for pinching and pruning refer to the varieties represented by the *May Duke* and *Bigarreau* only. The *Morellos* and *Kentish*, which produce their flower-buds on the young growth, require a rather different system of pruning. Instead of pinching back the whole of the shoots, remove altogether with the finger and thumb, early in the summer, such as are not required, and allow those remaining to grow unchecked until the winter, when they can be shortened back as may be considered desirable.

The cherry succeeds in any good garden soil, but it appears to do better in soils rather light than otherwise. Previous to planting, the ground should be deeply trenched; and if poor, a dressing of fresh loam, or a little manure, applied. In case the trees grow with too great a degree of luxuriance, they should be root-pruned by cutting a trench round the tree, between two and three feet from the stem, according to the size of the tree, and then shortening the roots to the side of the trench. Care must also be taken to work the spade well under the ball of the soil, to cut through all roots that strike down in a perpendicular manner into the subsoil. Some amount of judgment is necessary, and trees which have not been disturbed, or root-pruned, for several years, should be pruned on one side one year and on the other the following season, so that they may not receive too great a shock.

The figure on page 10 represents the *Frogmore Bigarreau*, one of the most useful varieties in cultivation. For this excellent cherry we are indebted to Mr. Turner, of the Royal Nurseries, Slough.

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## ON THE FORMATION OF BUSH ROSES.

BY M. VAN HULLE,  
Of the Botanical Gardens, Ghent.



INSTEAD of close-pruning rose trees every year, which reduces the number of blooms, we would recommend the adoption of a method which we ourselves have practised during the past year on *General Jacqueminot*. In place of heading down all the branches to two or three eyes, we leave one untouched in the centre (see the figure) and cut back the rest as may be required. We thus get a



profusion of blooms on the old wood, without interfering with the young branchlets, which are to furnish the new growths for the year following. During the next and succeeding years, a like selection of branches for pruning will enable us to secure an unlimited succession of new growths, as in peach trees, or long-trained vines.

Since writing the above note, an experiment of the present year (1872) has turned out a complete success. We have counted one hundred and fifty blooms upon a single stock. In our opinion the question is decided. The frequenters of the Botanic Gardens at Ghent have for some time past found an attraction in the bushes thus dealt with, little imagining the mode of treatment adopted with them, which we now lose no time in making known.



## CHRYSANTHEMUMS FOR THE CONSERVATORY.

BY ADAM FORSYTH, F.R.H.S.,

Brunswick Nursery, Stoke Newington, and 128, Mount Street, Grosvenor Square, W.



IN the FLORAL WORLD for January, 1868, I had the honour of offering a few hints on the cultivation of the Chrysanthemum for the decoration of the conservatory, and I now return to the subject; for with increased experience we gain increased knowledge, and I hope that the suggestions that will be offered will be of as great a service as those which appeared in the communication above referred to. After being before the world as a chrysanthemum-grower for so many years past, it is quite unnecessary that I should speak of the interest I take in that flower; but it is satisfactory to me to note the fact that its cultivation is rapidly extending, and where one amateur grew chrysanthemums in a satisfactory manner five years ago, there are at least twenty who produce a fine display in their conservatories during the month of November. It would take up too much space to mention all the fine displays I have seen during the past season, but in the gardens of that veteran grower and raiser, and highly-respected gentleman, Dr. Sharpe, at Waltham Cross, occurred such a sumptuous display, that some mention must be made of it. The plants were grown in the natural style, and well furnished with magnificent flowers, and arranged in two banks, with a path between them, in a roomy structure seventy feet in length. A more glorious display of flowers could not possibly be produced during the autumn, and no word painting can convey a proper idea of it. It is not to be expected that many amateurs can produce a display equal to his, yet it is a comparatively easy matter to produce one which will be in every way satisfactory, and I should much like this class of cultivators to show their friends that the conservatory can be made to present a bright and cheerful appearance during the most dull and dreary season of the year.

In the gloomy months of November and December, when the chrysanthemum is in its prime, gaslight entertainments begin to assume increased importance, and many of these might be considerably enriched by the aid of these noble flowers. The poinsettia and the solanum are charming things for gaslight decoration, but the chrysanthemum affords endless variety at an extravagantly cheap rate; and in a private entrance-hall, a concert-room, a bazaar, or the covered approaches to any place of public resort, a bank of chrysanthemums affords a brilliant welcome and a grand accompaniment to any kind of festivity, because every known variety appears to advantage under gaslight.

The employment of chrysanthemums in decoration of the greenhouse and conservatory is most important, and I have endeavoured to exemplify the value of the plant for this purpose at my nurseries at Shacklewell and Stoke Newington, during many years past, and in that time I have seen many a garden made gloriously gay by the

adoption of the plant for a conservatory feature. It should be remembered, that it is not necessary to bestow so much care on specimens for home use as for a public exhibition. Provided they are leafy, healthy, flowery, bright, and buxom, the requirements of the case are satisfied. They need not be trained at all; they may all be grown according to their natural characters, as bushes, and if the assortment consists of pompones and large-flowering varieties in about equal proportions, they may be grouped so as to form a dense rich wall of flowers, well backed up by a groundwork of dark leafage.

In preparing a display of autumnal flowers for the conservatory, it is well not to attempt too much, and it should consist chiefly of untrained plants. There is no particular necessity to begin business until March; by so doing, the cultivator is spared the trouble of nursing cuttings through the dismal days of winter. Having the stools stowed away in a pit or under a wall, the cultivator will, early in March, take as many cuttings as he requires, and soon make nice plants of them. If he has no stock to begin with, he will, of course, have to beg or buy. In begging, it is well to make sure that you obtain cuttings worth having, with their proper names attached; for it is not at all unusual to find that a season has been wasted in growing sorts that have long since been discarded by good judges as unworthy of a place in any selection, unless it be a selection of sorts to be extinguished.

It will be well to stop all the plants early in April, and a fortnight or so afterwards to shift them into forty-eight-sized pots. About the middle of May they should all be put out and plunged. Very many amateurs who do the chrysanthemum well do not plunge the pots. To them I say, long experience and observation—having the interest of my business to make me watchful—have convinced me that those who do well without plunging may do better with it, and they will escape many risks which plants in unplunged pots are always exposed to.

As to any further stopping, a little judgment must be exercised. Look over the plants in the first week of June, and then and there settle that part of the business. If you are not familiar with the sorts, take a trade catalogue and look them through. When you find by the label on your plant that you have to decide as to one of the finest incurved varieties, do not stop the plant. In any case, if you find the variety is *not* recommended for specimen culture, refrain from stopping. On the other hand, those which *are* recommended for specimens may be stopped in the first week of June, as being free to flower. You will be safe, and will obtain more flowers than if you refrain from stopping. To sum up the case in a few broad rules. First-class Incurved and Late-flowering varieties should only be stopped once, and better if not stopped at all. Reflexed, Free-flowering, and Early-flowering kinds in all classes may be stopped twice, and the smaller sorts, such as Intermediates and Pompones, may be stopped three times, and the last pinching should be done in the early part of June or by the middle of June at latest.

One good reason for looking over the plants in the first week

June, and then making an end of the pinching business, is that about the middle of June the plants should be shifted into eight-inch pots, to give them a good chance in the height of the growing season. Keep them freely watered at the root, and overhead in dry weather, and even in rainy weather see that they are moist enough at the root, for it often happens that, while the leaves are well washed by rain, the roots get none of it.

By the middle of July it will be necessary to settle another point—which are to be shifted and which are not. Here, again, the sorts may be classified very nearly as above; but the first thing to consider is the size and general appearance of the plants. The first-class show kinds will be the better for a shift into eleven-inch pots where large specimens are required, but the reflexed and smaller kinds may be allowed to flower in eight-inch pots, and may be helped to the end of their journey by liquid manure as soon as they have quite filled their pots with roots. In any case, however, robust plants that have quite filled their pots with roots, and that appear, by their ample leafage and stout stems, to be capable of growing considerably larger yet, should be shifted to give them a chance of making a grand show when their day of triumph arrives.

The question will arise in the ambitious mind—why stop at eleven-inch pots? why not go on far beyond that? The proper reply, perhaps, would be, that experience has proved that to overpot these plants is to waste labour, and render them unwieldy without the slightest gain, but probably a loss both in quantity and quality of flower. The growing season extends from about the 1st of March to the 1st of August, say, to put it roughly, six months. In that time the plant will attain to a certain size, according to its advantages, and it is the business of the cultivator to provide all the advantages the plant can make use of. But when the growing season ends, the wood begins to ripen, and the flower-buds to swell, and the increase of root-room then is more harm than good. In case of any large vase or basket or tub requiring to be filled with chrysanthemums, the best way would be to plant it with a lot of healthy plants out of forty-eight-sized pots about the middle of May, taking care not to overcrowd them, and to keep them nicely tied out to prevent destruction of the lower leaves by overlapping.

In preparing a conservatory display, the greatest care should be taken to keep the plants green to the bottom. In growing for cut flowers this is of less importance, although it is not unimportant.

In selecting for conservatory decoration, free-flowering kinds of the most distinct and striking colours are always to be preferred. Many of the most perfect exhibition incurved flowers are not showy, and, although a connoisseur will prefer them to all others, many of the high-coloured reflexed flowers will be preferred by those who are less critical. Plenty of flowers and plenty of colour are the principal desiderata in selecting for conservatory decoration, and happily there are a few of the very finest exhibition kinds, such, for example, as *Jardin des Plantes*, *Mrs. G. Rundle*, *Dr. Sharp*, and the *Prince of Wales*, which give us an abundance of flowers, of the most attractive character. It is not important to select early-

blooming kinds, because they will have the aid of glass after the first or second week in October, and be safe from the destruction of their opening buds by frost. I think if I had to provide a display for an employer, and certainly if, apart from all business, I were to grow a lot for my own enjoyment, I should select for the conservatory a few from every one of the classes, including Incurved, Reflexed, Japanese, Chinese, Anemone, Pomponé; and trust for the names to the "Garden Oracle."

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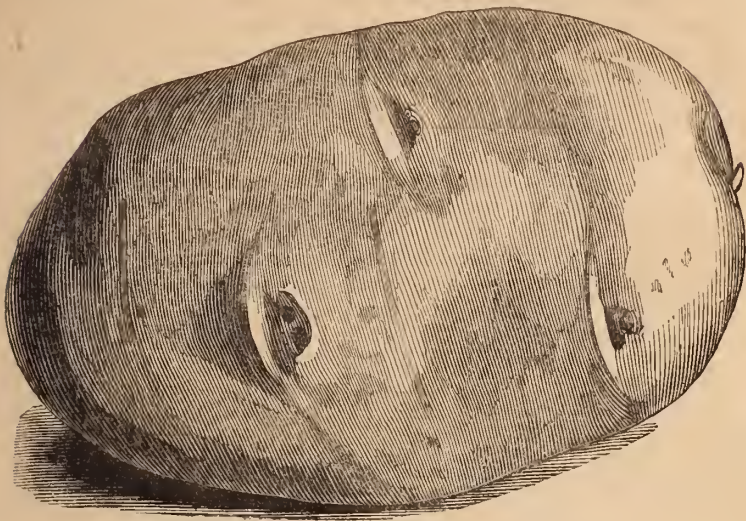
### NOTES ON POTATOES.



THE notes on "Disease Proof Potatoes," which I contributed to the FLORAL WORLD for December 1872, have, I am happy to say, created a great demand for the sorts recommended, and I beseech of our readers to make themselves safe in respect of seed potatoes in good time, for the disease proof sorts will soon be bought up, and we may really witness a repetition here of the American mania, which raised the value of some sorts of potatoes to fifty dollars a root. All we experimental gardeners can do, is to state as plainly as possible what we know, and then leave the laws of supply and demand to settle the commercial matters. Now it will be seen, we hope, how important it is for the interests of the public, and of really honest journalism, that we should keep aloof from all trading operations and avoid the very appearance of evil. We have but one correction to make in the list of disease proof potatoes published last month. It is proper that *Wood's Scarlet* should be added to the list, for this we find is one of the very best on our wet soil, and in several far removed wet and dry districts, it has given good crops in the past summer. If I could be carried away from public duty by private friendship, I should stick to *Headly's Nonpareil*, which is without question the finest potato in the world, and as the production of my dear old friend, Mr. Headly of Stapleford, a most agreeable reminder to me of happy days of "auld lang syne." Mr. Headly has lately sent me samples from his lively sandy loam, and they are certainly superb. He reports that he has taken up a heavy crop, and is as much as ever satisfied that Headly's Nonpareil is worthy of a place in every garden in the British islands. Fortunately for the cause of truth, it matters not to Mr. Headly, as it matters not to me, on financial grounds, whether his seedlings or my seedlings produce money in the market, and so we can consider their respective claims without fear of the detestable influence of what is called the "commercial principle." Therefore in respect of the favourite potato of my dear old friend—who is one of the best judges of *quality* in vegetable productions that ever lived—I shall say that on dry soils it is disease proof, but on wet soils the disease annihilates it, and there, as respects the disease, the grand question is at an end. In respect of quality, apart from the subject of disease, Headly's Nonpareil is all that Mr. Headly declared it to be years ago—the finest potato in the world.

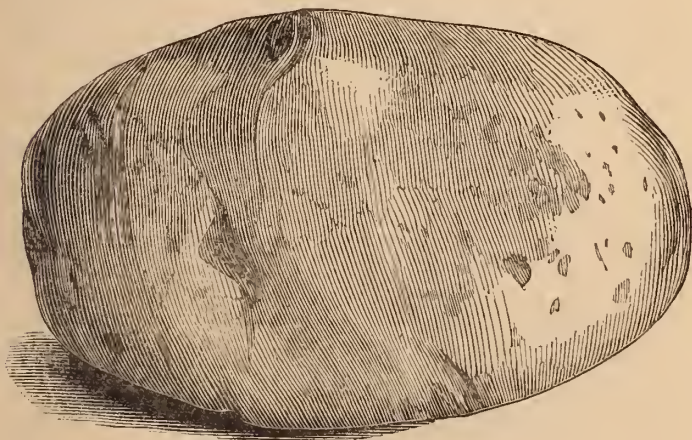


In comparing the immense number of reports that I have received from various parts, the preponderance of testimony is in



BELL AND THORPE'S SEDILLA.

favour of Sutton's Red-Skin Flour-ball as the best potato of the season, and the American Early Rose as the second best. Now I



BELL AND THORPE'S CLIPPER.

must repeat the remark made in the report published last month, that Bell and Thorpe's *Model* is the best potato of the season, for it

January.



was not only disease-proof, but handsome, fine in quality, and wonderfully prolific. You will ask, perhaps, why it was not reported on from several districts as a remarkably fine potato, and the answer is ready to hand. It was known to very few persons, and those few had (in common with myself) been supplied with seed by the raisers. When it becomes generally known, it will probably prove, for some fifteen years or so, the best of all potatoes. Nearly as good, and far in advance of the average of potatoes in the market, are Bell and Thorpe's *Sedilla* and *Clipper*, of which we present figures. They are, as will be seen, neat kidney-shaped varieties.

This brings us naturally enough into contact with Bell and Thorpe's potatoes, and we are bound by duty to our readers, to say that they are the finest lot of seedlings we have ever had submitted to us for trial, and have furnished the largest number of any group in 1872 of disease proof potatoes. The raisers' descriptions of them will serve as a guide to purchasers of seed potatoes, who, we trust, will carefully observe that we find some of Bell and Thorpe's varieties as bad as other people's. The words "disease proof" and "not disease proof" are to be understood as affording the best possible estimate we can make of their probable values in a bad season. As there is no potato absolutely disease proof, and as on dry soils, some that suffer much on wet soils, escape unhurt, it will be seen that such an estimate as we make for our own guidance is comparative and local, but as we judge potatoes on heavy land lying low, our estimates of goodness are perhaps severer than many other people's would be, and perhaps for that reason the more useful to the public generally, as explained in the FLORAL WORLD last month.

There are the very important preparatives for the crop of 1873 now to be thought of. The land must be well prepared, and the seed must be the best possible. Most fortunate are those few who managed to trench up land in autumn for potato planting. For the dreadful rain, rain, rain, prohibited the work almost universally. We can but say that opportunities must be made the most of, and the preparation of the land for potatoes should commence at the very instant that the ground is either sufficiently frozen or sufficiently dry to allow of deep digging. As to the seed, it should be prepared in *daylight*, and the simplest way is to put the selected tubers in boxes and baskets, and set them out on the floor of a loft, or any similarly dry and cool place where there is some amount of daylight. This mode of treatment will insure short, hard, purplish sprouts, full of vigour and ready to push freely when covered with kindly soil, but seed potatoes taken from sacks or clamps in which they have made long white sprouts are already debilitated, and have for the most part to make a quite new growth from dormant eyes, the white sprouts usually perishing as soon as the sets are planted.

One more note must suffice for the present. The prevailing custom of planting potatoes so close that the haulms become entangled, is an invitation to disease to come and ravage the field. The potato, more than any other plant in the garden, lives on sunshine, and the planting should be so ordered that the whole plant is fully exposed to the light and air, and the soil around it allowed to absorb the heat

of the sun. Our own rule is to plant all strong growing sorts four feet apart, and put out winter greens between. By the time the winter greens begin to be a little hampered by the overspreading growth of the potatoes, the latter will be ripening, and will be taken off the ground. The result will be, as a rule, a fine crop of potatoes, and the ground covered with a grand growth of such things as sprouting broccoli, Brussels sprouts, Scotch Kale, and such like. S. H.

## CHOICE STRAWBERRIES FOR GARDENS.

BY GEORGE SMITH.



As you well know, we grow a large collection of strawberries, comprising all the most important of the new introductions, and thinking a few notes on those which deserve to be the most generally cultivated, to be acceptable, I have sent them, for you to do with them as you wish. As some strawberries do better on certain soils than others, it is desirable it should be stated that the soil of my garden is a rather deep holding loam without being too heavy; strawberries therefore do exceedingly well, and some varieties which make but poor progress in other gardens thrive amazingly, and yield very excellent crops. It may happen that in very heavy or very light soils, some of those which I shall recommend as being really first-class may not do quite so well as could be wished; but it is very certain they are all exceedingly good when grown under favourable circumstances. The varieties which are the best for maintaining a succession over the longest period are—

*Aromatic*.—A heavy cropper, producing large and handsome fruit, fine flavour, with a most agreeable aroma; valuable for main crops.

*Cockscomb*.—Fruit large and rather flat, hardly so handsome as some others; flavour rich, productive and useful for main crops.

*Crimson Queen*.—Fruit large, but sometimes coarse in appearance; the flesh is very solid and highly coloured, but it is hardly so richly flavoured as some others; it is, however, most valuable for late crops, and will be much appreciated by those who prefer a rather acid strawberry.

*Dr. Hogg*.—Valuable in rather strong soils, but of little use in those of a light character. The fruit is large, handsome, and well coloured, and the flavour rich and sweet; rather late.

*Elton Pine*.—The fruit is large, handsome, and well coloured; rather late in attaining maturity, and like other late kinds it possesses a rather acid flavour.

*Frogmore Late Pine*.—This is one of the most valuable of the late varieties; the fruit is large and handsome, and the flesh is rather sweeter than the other late kinds.

*James Veitch*.—Fruit very large and handsome; flesh white, with dark crimson skin; flavour rich, with most agreeable aroma; fine for main crops.

January.

*Lucas*.—Large in size and handsome in appearance, flavour very rich and aromatic; heavy cropper, and altogether highly desirable as a main crop variety.

*President*.—One of the very finest varieties in cultivation for main crops, as it immediately succeeds the early varieties. The fruit is of fair size, good colour, and handsome, and the flavour is most excellent; it is also very productive.

*Royalty*.—A valuable new variety, producing medium-sized fruit; often most excellent, it possesses the good qualities of being robust and productive, and deserves to be very generally grown.

*Sir C. Napier*.—Large, handsome, and productive; a desirable variety for those who prefer strawberries possessing a sub-acid flavour.

*Sir Joseph Paxton*.—Fruit rather above the medium size; handsome and of fine colour, rich in flavour; early and very excellent.

*Vicomtesse Héricarte de Thury*.—Early and highly productive; rather acid, but a most valuable variety for its earliness and productiveness. With respect to forming new beds, there can be no doubt that when the cultivator has beds from which to obtain a supply of runners, the autumn is the most suitable season of the year for the work. But in certain cases where the runners have to be procured from a distance, the early part of the spring will be found the best season for planting. Strong runners put out early in March will make quite as strong plants by the end of the season as those planted out late in the autumn. In low-lying localities, where the soil remains charged with moisture throughout the winter, a proportion of plants will perish. I would therefore advise those who contemplate making new beds to do so in the course of the spring, instead of waiting until the autumn season. The principal point in strawberry culture is to prepare the soil thoroughly by dressing it liberally with partly decayed manure, and then trench it to a depth of eighteen or twenty-four inches, and in doing so break it up well, and thoroughly incorporate the manure with it. Overcrowding must be avoided, and the plants should be eighteen inches apart in the rows, and the latter two feet from each other.

## A BEDDING PLANT FOR THE WINTER GARDEN.



ONE of the most objectionable points as regards the bedding-out system is that when the summer occupants are removed from the beds, the latter are usually allowed to lie fallow, bare, and cheerless throughout the winter, spring, and even the first month of summer, till they can be again filled. This need not be; for, in what is in modern parlance called winter and spring gardening, there are abundant resources and material with which it is not alone quite possible, but easy, to have the flower ground looking almost as gay, and perhaps rather more interesting, during winter and spring than it does when

decked out in its gayish summer toggery of red, white, and blue. The materials usually availed of where spring gardening prevails are bulbs, hardy annuals, hardy herbaceous perennials, and variegated and otherwise curiously-coloured plants. The value of bright-coloured or variegated foliage plants for the ornamentation of the flower beds or dressed ground during the winter or spring months cannot be too strongly insisted on. Among gay-foliaged subjects of an herbaceous habit, the Golden Feather Pyrethrum is by long chalks the most useful and effective plant we have. Some time since we devoted an article to the subject of shrub-bedding, in which it was attempted to show the advantages to be gained by a combination of the Pyrethrum with the ordinary spring bedding. On the present occasion our object is to direct the attention of our practical friends and others interested in ornamental gardening to a subject little known, and which, if taken in hand, will, in its way, be as valuable as is the Golden Feather Pyrethrum, and that is saying a good deal for it.

The plant we allude to is, like the Pyrethrum, one of the Compositæ, but, unlike it, is of a shrubby and persistent character. Our *protégé* is the Golden-leaved Diplopappus, *D. chrysophylla*. Here is a hardy low-growing shrub, which may be popularly described as heath-like in appearance and foliage, with the exception that the Diplopappus looks as though it had been dipped—leaves, branches, and stem—in a solution of gamboge, or other gold-coloured pigment; in fact, it is the most perfectly gold-coloured plant that has ever come under our notice. It is perennial, perfectly hardy, will strike freely from cuttings, will accommodate itself, we should say, to any requirement, whether it be to form a gilt volute or finial in the fanciful scroll garden, a lowly but perennial edging or belt of gold to the flower bed, or a veritable obelisk or pillar of gold, should fancy so choose to fashion it. Apart altogether from bedding or flower ground considerations, grown in its natural form as a shrub, it is well calculated to arrest attention, and deserving of being brought under notice.—*Irish Farmer's Gazette*.

## VIOLAS AS BEDDING PLANTS.

BY J. A. GORDON,

Superintendent of the Crystal Palace Gardens.



ON the slope of the Rose Mount in the Crystal Palace Grounds a bed of mixed violas was so thoroughly effective that some account of it will probably interest many of your readers. The bed to which reference is made was at the bottom of the slope, not far from the specimen *Wellingtonia gigantea*, planted in the centre of the triangular piece of turf. The violas with which the bed was planted were raised from seed started in a brisk temperature early in the season. The seed, was procured from Messrs. Downie, Laird, and Laing, Forest Hill, S.E., and as seed of *Viola Perfection*, now known as a thoroughly



good bedding plant in soils and situations where the violas do well. The seed was sown in shallow boxes, and placed in a heated structure until the plants were well up, and the majority had acquired a moderate degree of strength. As soon as this was the case, they were carefully and gradually hardened off, and then picked out into a bed of moderately rich and friable soil, made up in a cold frame. Here they remained until they were taken up, and planted in the bed at the same time as the other beds were filled with their summer occupants. They were, of course, lifted carefully, and replanted as quickly as possible, and well watered immediately afterwards to prevent their receiving any unnecessary check. The remaining part of the story is soon told, for the plants, as soon as they became established, commenced to flower freely, and remained in full bloom until a very late period. In fact, the bed was almost solid with bloom after all the other bedders had been destroyed by frost. *Viola Perfection*, it must be understood, does not reproduce itself true from seed, and there were nearly as many different varieties as there were plants. Every shade of colour, from pure white to deep bluish purple, and from pure white to deep golden yellow, was well represented, a considerable number of the flowers being of fine form and substance, and a considerable number of the plants were remarkable by the compactness and vigour of the growth, and the wonderful profusion with which the flowers were produced. These several shades, all intermixed together, produced an especially good effect, and the bed for real attractiveness quite surpassed many of its neighbours.

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## THE CULTIVATION OF ALPINE PLANTS.

(From *Wooster's Alpine Plants*, published by Bell and Daldy.)



THE cultivation of Alpine plants, or, as the term implies, plants which are natives of alpine or mountainous regions in various parts of the globe, but chiefly inhabiting the temperate or frigid zones, has for some years past been mainly confined to gardens strictly botanical. A taste for their possession is, however, now on the increase, and collections are to be found in some of the private gardens of Great Britain and Ireland. These interesting plants are exceedingly well adapted for amateurs having limited accommodation, for they occupy little room, and are not expensive to purchase, and a good many of them are of comparatively easy culture, blooming from early spring till late in the autumn, and some even throughout the winter.

Though a very general assemblage of plants is formed by gardeners under the title of Alpines, these plants ought properly to be limited to such as grow on high mountains. The gardener, however, adds to them all very dwarf herbaceous plants that are somewhat difficult to preserve in a state of cultivation. Some of



these, instead of being alpine, are arenarious, sea-side, or bog-plants. Alpine plants are almost universally very low, bushy, and evergreen. They are very often planted on rockwork, or in other suitable situations, or they may be grown in pots plunged to the rim in sand or coal-ashes, within a cool pit, so constructed that a sufficient protection from frost and wet may be afforded them during winter; for, however strange it may appear, plants from the frozen regions of Spitzbergen, Melville Island, and other parts, will not survive our winters without a certain amount of protection. In their native habitats they are protected from intense frost and damp by thick coverings of snow, during which period they are also confined to total darkness. The atmosphere which surrounds them is of light or thin air, almost always charged with vapour; and the soil in which they grow is generally soft, black, and peat-like, forming a thin stratum on rock, or filling up the chinks of rocks or stones, and always moist. Art imitates these circumstances by putting such plants in small pots of peat or bog earth, well drained by gravel, or scarcely drained at all, or mixed with stones, or with sand, according to the habitation to be imitated. The pots are kept during winter under glass in frames, or pits, in a situation exposed only to the morning sun; and in summer they are removed to a full northern exposure, or screens are placed so as to produce this effect in their winter situation. In further imitation of these conditions, the pits containing alpine plants are covered about the end of November, with thin-boarded or felt shutters, which sufficiently exclude the extent of frost that would be injurious to them, and keep them comparatively dry and nearly deprived of light. Towards spring, air and light must be admitted gradually, as it were in imitation of the progressive melting of the snow, until, by the beginning of March, vegetation begins to revive in the plants, when all the light possible is afforded them, covering them only during very cold or frosty nights: afterwards the covers are removed entirely. During winter, on fine days, the covers should be taken off, that the plants may be examined, and all dampness removed; for, it should be remembered, the artificial covering has a much greater tendency to create damp than the constant covering which the plants have in their native places of growth. This may possibly arise from the variableness of our climate compared with that in which alpenes naturally grow.

In March, yearly, the plants should be re-potted, and such species propagated as are required, by division of the plant, by seed, saved during the previous summer, or by cuttings, according to the nature of the various kinds. The soil used should, for a large number of them, be sandy peat and loam in equal proportions; some, however, are grown in sandy peat alone; others, which are only found amongst the *débris* of micaceous rocks, in a soil of which mica, in a reduced state, forms a part; the true bog-plants, in peat-bog soil; while alpine aquatics should be planted in sheer sand, and submerged in tubs of water. The pots generally used are small or large sixties. These will, no doubt, be found most convenient in many cases; but to grow the majority of alpenes to the greatest

perfection, pots or pans nine inches in diameter, and about five inches in depth, should be used. These should be perforated at the bottom and round the lower part of the sides with numerous small holes, for admitting air to the roots, and in order to secure ample drainage. From one to two inches of drainage should be placed in the bottom of the pots; and, when the potting is finished, small white pebbles should be placed around the plant on the surface of the soil. Upon these many of the creeping and prostrate kinds recline, and are prevented from damping off, as the air passes freely under and amongst the stems and leaves. The stones also tend to keep the soil uniformly moist, by preventing evaporation; and, in many cases, the roots of some of the rarer species luxuriate more under these stones than elsewhere in the pot. At the beginning of the growing season, abundance of water should be given, often twice a day; for it is certain that alpine plants, in their native habitats, are at that stage nearly at the point of saturation, in consequence of the melting of the snow above and around them. In all mountainous regions a great amount of atmospheric moisture exists, and hence the practice of watering alpine plants overhead with a rose watering pot is beneficial to them.\*

Perhaps an improvement in the management of alpine plants would be to set the pots, in the summer season, on a frame or grating of cast iron, placed a few inches distant from a cistern or pool of water, by which means a constant evaporation would take place, and a moist cool atmosphere be produced. Or the pots might be arranged in beds, and a pipe, finely pierced with holes, might pass along the centre of each bed, at such a distance above it as that the shower would just cover the bed. A shower might thus be applied at pleasure, and the plants kept moist by prolonged and gentle rain, instead of being deluged by sudden and heavy rain from the watering-pot.

Many alpine plants may be very successfully grown in towns, in back yards, and on house-tops; and it is believed that an extensive collection might be so grown in the centre of Loudon, if placed in frames covered with glass sashes, to protect the plants from the numerous atmospheric impurities.

\* For the encouragement of all lovers of alpine plants, Messrs. Backhouse, in the new edition of their catalogue for 1871, make the following statement: "A large proportion of the truly alpine species, which find their natural home in the crevices of rocks at a great elevation, grow with perfect ease in an open border, in ordinary loamy soil. And, strange to say, some that succeed with difficulty on artificial rock-work flourish well under such circumstances, and thus bring within the range of every garden a large and varied amount of beauty."

EDUCATIONAL FLORICULTURE.—At several of the schools in which the children of the poor are educated in Manchester, free distributions of hyacinth-bulbs have been made, with directions for their cultivation. In the spring, school exhibitions of hyacinths will be held and prizes awarded; and we may suppose that something good, morally, will follow. There is, we think, a trifle more sense in this procedure than the London practice of distributing late in the autumn the exhausted bedding plants from the public parks. It is well to give plants to the poor, but not particularly well to give them such as the gardeners would otherwise throw away.

## GARDEN GUIDE FOR JANUARY.

**KITCHEN GARDEN.**—Cucumbers in full growth will want linings, as the frost soon reduces the heat. Sow in pots for succession, and plunge in dung-heat. Sow small breadths of early peas and beans in sheltered spots, or in frames for transplanting. Small sowings may be made of lettuces, cauliflowers, and cabbages in boxes, to be forwarded in gentle heat; and plantations of horseradish may be made. For the latter the ground should be trenched two feet, and fat manure laid at the bottom of the trench; then dibble in the crowns in rows, two feet apart, the sets six inches from each other. Asparagus, seakale, and rhubarb may be forced with very little trouble, by making up a hot-bed in an old frame, taking up the plants and placing them on it, and covering with any light soil; if the heat does not hold till the plants have done their work, warm linings must be used. Asparagus put in for a succession; cover with three inches of mould over a steady sweet-heat.

**FLOWER GARDEN.**—Bulbs may still be planted, and bloom well, though late; but it is an injury to them to be left so late. Autumn planted bulbs will soon be pushing through, and though moderate frosts will do them no harm, it is as well to mulch the beds to guard their foliage from the effect of the severe frosts which frequently follow heavy rains at this season. The best beds of tulips should be covered during storms, if there is any indication of a frost following, but if the weather continue mild and open, let them have the benefit of gentle showers. Tulips, however, are the hardiest of all bulbs, but hyacinths, gladiolus, ranunculus, anemones, and Cape bulbs generally, need some little protection during severe weather. During dry weather, it is well, at this season, to stir the surface of tulip beds, to give air to the roots, and lay the soil, finely broken, against the stems. After frosts, look over the borders, and where plants have been lifted, press the earth close about them. Have at hand fern, dry litter, or mats, to protect any out-door things of questionable hardiness, but do not keep them swathed up longer than is strictly necessary. Small subjects, such as pansies, may be protected by means of a garden pot, turned over, and with the hole stopped; this should be removed every morning, when the weather is not too severe. Auriculas water only enough to prevent getting dust-dry, and choose mild weather. Cleanse from dead leaves, and in so doing guard against injuring the collar of the plants. Keep the frost out of the frames if possible. Beds of pinks should now be top-dressed with rotten dung. Pansies, carnations, and other herbaceous plants in pots, must have plenty of air and moderate waterings, for they are now beginning to grow—for all such things a north aspect is best during the whole of this month, for the morning sun is often more injurious to them than one or two extra degrees of frost. Prepare ground for plantations of dahlias, hollyhocks, carnations, and chrysanthemums. If well trenched, and broken up with dung now, it will be in much better condition at planting time than if made ready at the last moment.

Dahlias to be looked over, and those of which stock is wanted to be got to work. Choice sorts are best got in for roots, and get them at once, if not secured. Carnations must have air as often as possible to prevent mildew. Beware of damp, especially after frost. Pansies to be protected by sticking a few evergreen boughs among them. Plants in pots keep safe from frost.


CONSERVATORY AND GREENHOUSE. — Conservatory to have enough fire to keep away frost and damp. Ventilate whenever weather permits, and drive out damp with fire-heat, but be in no haste to set things growing. Mildew will appear occasionally on the top shoots of geraniums; cut at once to a sound joint. Keep the floor very clean. Training specimen plants is a very interesting task when outdoor work is at a stand-still. Prepare for the busy season by securing compost, pots, crocks, etc. The cultivator must be daily on his guard against severe weather, and rapid growth must not be promoted. Camellias, and other plants coming into bloom, should be kept liberally moist, and should have weak manure-water once a-week; they should be placed in the warmest parts of the house; ericas, epacris, etc., may have cooler places. Bedding plants may now be started for cuttings, where there are good appliances for propagating; but, where resources are limited, it would be better to wait till next month. Cinerarias to be sorted over, and those showing trusses to be encouraged in intermediate house. The strongest of those not showing trusses may have another shift to make fine specimens for late bloom. Use sulphur if any signs of mildew, and secure against frost. Fuchsias of good sorts should now be repotted in peat and fibrous loam, and started for early blooming, and such as it may be desirable to propagate, will soon furnish cuttings for the purpose. Calceolarias, geraniums, and primulas should have a warm position, and moderate supplies of water; those that require it should be cleaned and shifted, and all plants showing trusses should have weekly doses of manure-water, and abundance of light, and as much air as the state of the weather will permit. Watch for green-fly, and fumigate before mischief is done. Keep the house as clean and dry as possible, and admit air on fine days whenever the temperature outside rises above 35 degs., and especially among heaths and hard-wooded plants. Keep succulents quite dry. Temperature 40 degs. to 45 degs. at night, 50 degs. to 55 degs. by day. Pelargoniums for show to be kept gently growing. Avoid wetting the leaves. Keep the plants sufficiently apart for air to circulate, and near the glass. Fumigate frequently.

STOVE.—During this month it is necessary to guard against premature excitement, the solar light being insufficient to sustain a healthy, rapid growth; hence, water must be given sparingly, and the breaking of the plants retarded as much as possible till next month, by the maintenance of a very moderate temperature; on the other hand, stove plants that are now coming into bloom, or such things as are forced in the stove for greenhouse and conservatory embellishment, should have every encouragement. Forced roses should be looked over, and the buds examined for the detection of grubs, and the drainage of large pots should be looked to, to see



that no stoppage occurs. Plants intended for specimens must be repotted as they require it. Orchids and ferns may be repotted and separated where desirable; Poinsettia pulcherrima, and Euphorbia jacquiniiflora may be taken to the greenhouse if the temperature there ranges about 50 degs., and a few achimenes and gloxinias may be put in heat for early blooming. Cucumbers and melons for early use should be got in at once. Average temperature of the stove this month, 60 degs. A temperature of 50 degs. night, and 60 degs. day, will bring on roses, daphnes, lilacs, weigelias, kalmias, azaleas, double plum, almond, and peach, and other of the showy spring flowers, with very little trouble. Keep a moist air, and beware of crowding.

### NEW BOOKS.

MOST important among recent horticultural books is a handsome volume entitled *The Clematis as a Garden Flower*. By THOMAS MOORE, F.L.S., and GEORGE JACKMAN, of the Woking Nurseries (Murray). In the FLORAL WORLD for May, 1871, we presented a coloured figure of one of the new hybrid clematis, and gave some account of them and their decorative uses and cultivation. The new and attractive work by Messrs. Moore and Jackman will be found intensely entertaining and permanently useful to those of our readers who have made themselves acquainted with the merits of these flowers, and we may as well add that those who have hitherto neglected them may insure for themselves a new and expansive pleasure by securing the treatise, and making it subservient to an hour of intellectual pastime, while the nights are long, and the fire-side the safest haven. In a substantial octavo, the authors have presented a full account of the clematis family, and of the rise and progress of cross-breeding, which has resulted in the production of a superb group of garden flowers, which have the threefold merit of perfect hardiness, long continuance of display, and the production of floral colourings much needed to complete the chromatic harmony of garden scenes. In red and yellow shades we are rich; in blues and purples, poor; that is to say, we were poor; but the clematis has made us rich in this department also, and not a few of the new varieties are entitled to be regarded as the most gorgeously coloured of any of the many subjects available for outdoor display in the summer season. Moreover, these are not only bedding plants in the properest sense of the word, that need no protection of glass during the winter, but are remarkable for grandeur when properly grown in pots for the conservatory, or employed to cover walls and trellises with their light twining and fast-growing stems, and huge salver-shaped flowers of purest white, intensest purple, softened crimson, or full cobalt blue. The book before us treats in the amplest manner of the cultivation of the plants, as well as of their botanical relationships and garden history, and it is a perfect guide to the selection of varieties for whatever purpose the cultivator may require them.



It is enriched with coloured plates and wood engravings, and is as worthy to adorn the table as to occupy an honourable place upon the shelf in the most select horticultural library. The second edition of *Scott's Orchardist*, now publishing, is a remarkable work of its class. It represents the most complete collection of hardy fruits in the country, that of Mr. JOHN SCOTT, of Merriott, Somersetshire; and the ripest judgment and experience in fruit-culture, that of Mr. John Scott himself, who has devoted years to his collection of materials for the purpose. As a fruit list it is invaluable, and must become the text-book for nurserymen, and those amateurs who grow large collections of fruits. But the essays on cultivation, training, selecting and multiplying fruit varieties, are equally important, and establish the industrious author in the high position of a benefactor to the horticulturists of Britain.—The *Illustrated Catalogue of Poultry Appliances*, issued by Mr. F. CROOK, of 20, Motcombe Street, Belgrave Square, is a substantial work of 54 pages, containing descriptions and figures of poultry-houses, aviaries, pheasant feeders, bone-crushers, egg-cabinets, and other useful and elegant accessories to the country house. It may be obtained by application through the post, free of charge, by supplying a penny stamp to cover its conveyance to the applicant.—The *Catalogue of Agricultural Implements*, issued by Mr. J. LE BUTT, of Bury St. Edmunds, Suffolk, is a capital thing of its kind, and may prove useful to many of our readers. It may be obtained through the post, gratis.—The *Garden Oracle* for 1873, by SHIRLEY HIBBERD, will prove, we hope, a welcome guest in many a household ere the year is out. It contains a new classified list of greenhouse and conservatory plants, descriptions of all the new plants, flowers, and fruits, and a series of selections of garden seeds, hardy fruits, florists' flowers, and other horticultural requirements for 1873.

### HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY, December 4.—The meeting of the Floral and Fruit Committees held on the above date was, for the season, unusually attractive. Prizes were offered for herbaceous plants for the decoration of the flower garden in winter, tree-carnations, chrysanthemums, and hardy berry-bearing plants. The prizes were mostly well contested, and, in addition to the competitive collections, several fine miscellaneous groups of plants were exhibited by several other exhibitors. The competition for the prizes offered for twelve winter-flowering carnations was very spirited, and the first prize was awarded to Mr. Charles Turner, of Slough, for a collection in which were well-flowered examples of Avalanche, white; King of the Belgians, pink; Valiant, scarlet; Vestal, white; Aletta, pink and scarlet; Prince Christian, deep rose-pink; Purity, white; Rosy Morn, deep rose; Blanche, white; Alice, rose; Minerva, blush-tinted pink; and Empress of Germany, white, large, and fine. Mr. W. Lee, Arundel, Sussex; and Messrs. E. G. Henderson and Son, Wellington Road, St. John's Wood, were second and third respectively, and staged neat groups of plants. Messrs. E. G. Henderson and Son were the only exhibitors of hardy herbaceous plants, and were most deservedly awarded the first prize. The collection included a fine specimen of the variety of the Christmas Rose known as *Helleborus niger autumnalis maxima*, which is far superior to the common form, the flowers being much larger and of finer quality. The first prize for hardy evergreens bearing berries was awarded to Mr. George, gardener to Miss Nicholson, Putney Heath, who staged a neat well-matched group, in which were well-berried speci-

mens of *Aucuba fœmina viridis*, *A. f. longifolia*, *Peructya mucronata*, *P. angustifolia*, *Skimmia oblata* and *S. japonica*. Mr. George also contributed a capital collection of cut flowers. A very considerable number of stands of twenty-four *Chrysanthemums* was staged, and the blooms were, on the whole, of good quality. Mr. Forsyth, of the Brunswick Nursery, Stoke Newington, and 120, Mount Street, Grosvenor Square, W., also exhibited several splendid stands of blooms, but not for exhibition. From the same exhibitor came *chrysanthemums*, *Hero* of Stoke Newington, light pink, finely incurved; and Mrs. Forsyth, a pure white seedling variety raised from *Christine*, which is so well known for its value for specimen culture. The flowers are large and full, and the plant is said to possess the fine habit of the parent variety. Two groups of Roman *hyacinths* were exhibited, and the prizes were awarded to Mr. Farrow, gardener to G. Bates, Esq., Bridgewater Hill House, Enfield, and Mr. Rowe, in the order in which the names are here placed.

THE SHAKESPEARIAN INDESTRUCTIBLE PLANT LABELS, manufactured by Messrs. Bell and Thorpe, are, we learn, in great demand. These labels are made of a grey metal, which keeps its colour well, as we can testify by twelve months' observation. That they are, in the most sober sense of the term, indestructible, and remarkable alike for neatness and cheapness, will for the present, perhaps, be considered sufficient to recommend them to the favourable consideration of our readers.

THE NEW HORTICULTURAL SOCIETY OF LYONS comprises amongst its members many of the most eminent horticulturists of France and not a few of the leading citizens of Lyons. The following constitute the administration:—President, M. Ernest Faivre; Vice-Presidents, MM. F. Gaillard and Léon de St.-Jean; Treasurer, M. Léonard Lille; Council, MM. Bergeron, Simon, Metral, Croza, Comte, Rochet, F. Lacharme, Joly, Jacquier (*pépinieriste*), L. Sisley, Jacquier (*marchand-granier*), and Accary; General Secretary, M. Jean Sisley; Assistant Secretary, M. Etienne Rohner.

THE TESTIMONIAL TO Mr. Frost, which was presented at a dinner at Slough on the 12th of December, made a formal and elegant termination to his fifty years of service at Dropmore. The promoters of this testimonial to the "grand old gardener" carried out their object in a spirited and generous manner, inviting horticulturists to subscribe without respect of party; and at every point excluding from the movement every possible cause of contention or jealousy. The election of Dr. Hogg as president was as discreet as any other of their proceedings, and the pleasant manner in which the affair concluded, around the festive board of the Dolphin Hotel, Slough, gave the most desirable proof that everyone had done his duty. The testimonial consisted of a beautiful gilt cup, and a purse of two hundred pounds.

GIFTS OF SUCCULENT PLANTS.—The following circular has been issued by Mr. Peacock, of Sudbury House, Hammersmith, London, W., who has probably one of the finest collections of succulent plants in existence:—"20,000 surplus cacti, agaves, and succulent plants, duplicates of which have been exhibited and taken prizes at the Royal Horticultural Gardens, South Kensington; Botanical Gardens, Regent's Park; Birmingham Prize Show, Crystal Palace, etc. Ladies and gentlemen interested in bazaars, fancy fairs, or other charitable and benevolent institutions, can be supplied gratis with a case containing 50 plants in neat pots, correctly and botanically named, to be sold for the benefit of the said object, and proceeds handed over as a gift from the undersigned. They will be delivered free to any part of London, or any railway station in the metropolis."

THE RAINFALL OF LAST YEAR.—Some idea of the recent rainfall is given in the return of the Registrar-General. The rain measured during October and November was 7.3 inches, or two inches above the average fall in fifty-six years. Rain fell on forty-six out of the sixty-one days in those two months.

THE BANYAN TREE.—Forbes, in his "Oriental Memoirs," says that a Banyan tree, named Cubbeer Burr, was nearly 2000 feet in circumference, measured round its principal stems, but that the ground covered by its overhanging branches was considerably more extensive. The large trunks numbered 350, and the smaller ones exceeded 3000. This tree at one time was considerably larger, a fearful storm, accompanied by a flood on the Nerbudda, having carried away a greater part of it,

reducing the number of the larger trunks from 1350 to the 350 now remaining. The original size of this colossal tree may be better conceived by remembering that 2000 feet, its circumference when Forbes saw it, is more than one-third of a mile. It is truly one of the wonders of nature. The careful provision by which everything is made to adapt itself to the circumstances in which it is placed, is strongly exemplified in the growth of this tree; for if these branches did not throw out roots, and so form a trunk with which to support their own weight, they would tear themselves off from the parent stem.

**TRUFFLES IN FRANCE.**—Truffles appeared to be very abundant last year. The Department of the Drôme has produced £72,000 worth; the Lot, £96,000; Dordogne, £60,000; Aveyron, £24,000; Vaucluse, £16,800; and Charente, £20,000. The entire produce in France was estimated at from £720,000 to £800,000.

**FLOWERING OF AGAVE AMERICANA.**—In addition to the two specimens of *Agave Americana* which have flowered in the Royal Horticultural Society's conservatory at South Kensington, another has flowered at the Crystal Palace, and a fourth in the gardens of Miss Elliotson, Clapham. The last-named example is much the finest. Its height from the ground was 21 feet 6 inches, the length of the flower-scape 16 feet 3 inches, and the diameter of the heads of flower, of which there were 24, about 15 inches across. The base of the flower-scape measured 15 inches in circumference. The plant has been in the Elliotson family sixty-one years, and is supposed to be seventy years old.

**AMERICAN PARKS.**—Our contemporary, *Nature*, in a recent issue, gives a description, with illustrations, of the Yellow Stone National Park, which is to be "dedicated and set apart as a public park or pleasure-ground for the benefit and enjoyment of the people." This park is described as being about half the size of Wales, and contains 3575 square miles between the 110th and 111th degrees of West longitude, and the 44th and 45th parallels of North latitude. No one is to settle upon or enclose any portion of this area, and only such buildings can be erected as the Secretary of the Interior may approve of. The district is very mountainous, the highest peak reaching to 10,575 feet above the sea level. In addition, there is a noble lake, waterfalls, hot springs, mud geysers, in comparison with which the geysers of Iceland sink into insignificance, and other indications of volcanic activity.

**CURE FOR BEE-STINGS.**—Mr. George Gordon writes as follows to the "Gardener's Magazine" respecting the use of soil as an antidote to the sting of bees:—"There are a number of well-known antidotes to the sting of the honey-bee, and, were it not for the fact that they are seldom available when required, it would be unnecessary to direct attention to an additional one. But the antidote I am about to recommend is everywhere available, for it is nothing more nor less than an application of common soil to the wound. Towards the end of the spring of this year, I had the misfortune to be stung by a bee when in the garden, and, as none of the usual antidotes were just then available, I drew the sting from the wound, and applied a little common soil, after wetting it sufficiently to admit of its being worked into the consistency of thick cream. The pain previous to the application of the soil was most intense, but in a few seconds afterwards it was reduced to a dull ache, and nothing more beyond a slight stiffness in the joints of the thumb was felt afterwards. I have had an opportunity of testing the same remedy since, and with the same degree of success. As the stings of bees and wasps affect some persons more than others, it is proper to remark that hitherto I have suffered most severely, losing in one or two instances the use of my hand for several days, through its swelling to such a large size, and being in the most intense pain."

## TO CORRESPONDENTS.

**TOP-DRESSING ROSE BEDS.**—*A Young Gardener.*—We have often recommended a mixture of guano and wood-ashes as a top-dressing for all roses that give autumn blooms; the dressing to be applied when the first bloom is declining. But the truth is that any manurial matters that are of a solvent nature, and not unsightly when laid on the surface, will answer the purpose. Two or three inches of fresh pigs'-dung, or short stable-dung only half-rotted, are the dressings generally



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most accessible, and nothing can be better. It is no use to mulch roses with well-rotted manure, because it is only what washes down by rain that feeds the roots, and the stuff should be pretty fresh and strong to convert every shower into liquid manure in passing it through the roots. But in addition to the mulching, they should have a careful pruning after the first bloom, to get the next growth and bloom from plump well-placed buds, those next below the flowers being the first to push, if left to do so, but not so good for late bloom as those a little lower down. It must be remembered that mulching not only feeds by manuring the roots, but also keeps the soil moist, an object not of much importance in a wet season, but a good fixed rule in rose-culture. After August we would never mulch roses, for fear of getting a rank soft growth late in the year, when the wood of the season ought to be well ripened.

**WINTERING CANNA ROOTS.**—*Lady Gardener.*—You can take them up, and store in a cellar or outhouse, or under the greenhouse stage. In either case, keep them from the wet, and put a little dry soil or sand over them, to prevent their being dried up. You can also allow them to remain in the beds where they are now growing without any danger of losing them, if you choose. The beds must be covered with some kind of protecting material, to prevent the frost getting to them. Long litter, cocoa-nut refuse, or dry leaves are all good. We, however, prefer the latter. Lay them on the bed a foot or eighteen inches in depth, and cover with soil to a depth of about four inches. If you leave them in the ground you will be perfectly astonished at the growth they will make next season, if any way favourable.

**KEEPING CALADIUM CORMS THROUGH THE WINTER.**—*H. W. Johnson.*—If they are still growing, dry the plants off as soon as you can do so with safety. When the foliage is nearly or quite dead, lay the pots on their sides in a warm corner of your stove: a temperature of 50° is the lowest that you must keep them in through the winter; ten degrees higher would be better, as we have repeatedly proved. Let the corms remain in the pots until you start them. If you are short of room, you can shake them out of the pots, and place the tubers in smaller pots, and then fill up with dry sand. They will do either way, provided they are kept dry.

**PIT FOR POT ROSES.**—*E. W. M.*—It all depends upon when you want your roses in bloom whether you should employ heat or not. If you want them in winter, you will do well to have a small upright conical boiler at one end of the house, and two rows of four-inch pipes all round. The cost would not be great, and there would be nothing experimental or uncertain in the arrangement. If you do not employ any heating apparatus at all, the roses will thrive with proper care, and in forward seasons will begin to bloom in April, and in late seasons in May. No need to plunge the pots in the pit, unless you have a brick-bed in the centre (a very good plan, by the way); and by filling that every spring with leaves, tan, or hot dung three or four times turned, to force them gently into bloom. In that case they would have to be plunged in some clean material.

**MARECHAL NIEL ROSE.**—*Amateur.*—Do not prune at all, except to remove any soft unripe wood.

**MANETTI, WHAT IS IT?**—*Amateur.*—The Manetti rose is an alpine species from the south of Europe; it grows in the form of a bush in the style of a China on its own roots, and is budded close to the ground, and afterwards planted, with the insertion below the surface of the soil, so that the base of the bud forms roots for itself. Contrary to what has been said, it may be used for standards, by getting strong rods on established plants; but we have yet to learn how long such standards live. In your light soil the Manetti will probably prove of more service than the dog-rose, and it may be had in quantities from almost any nursery at a low price. It comes from layers quicker than any rose we know.

**PROTECTING MAGNOLIAS.**—*R. W. S.*—If your plant belongs to the grandiflora section, it will need no covering in winter. The soil that suits it best is a very sandy peat, with a dry subsoil on good artificial drainage. They will do, however, in stiff loams, but should then be planted in peat, sand, and leaf-mould, to give them a start. If the leader is of sufficient length to feel the action of the wind, tie it in at once to prevent accidents.

**TO FLOWER THE TUBEROSE.**—*A New Subscriber, Wisbeach.*—There is only one certain way to flower the tuberose, *Polyanthes tuberosa*, and that is to get old bulbs from Italy every year, pot in rich sandy loam, and give them a comfortable bottom-heat to start them, and keep them under glass to bring them into flower for the drawing-

room. In the open ground it cannot do more than produce such leaves as the one you send. The best bulbs to grow in moss are hyacinths, crocuses, and jonquils. Any kind of moss will do, and it must be kept moderately saturated with water.

**USEFUL PLANTS FOR AUTUMN FLOWERING.**—*Amateur.*—Some of these plants must not be started until late in the spring, or their season of flowering will be over before you require them. Stove Plants: *Allamanda Schottii*, *Bougainvillea glabra*, *Eucharis Amazonica*, *Ixora coccinea*, *Vinca alba*, *Hippeastrum reticulatum*. Green-house Plants: *Crowea latifolia*, *Erica Mernockii*, *E. Austiniana*, *E. Irbyana*, *Lapageria rosea*, *Lilium auratum*, *L. lancifolium album*, *L. speciosum*, *Pleroma elegans*, *Phænocoma prolifera* Barnesi, *Statice Holfordi*, *Vallota purpurea*.

**PEARS.**—*J. J. M.*—The pears must be on the pear-stock; the quince will not do. The mode of training is to a great extent a matter of taste; probably horizontal training will suit you best, and it is the form most in favour for the pear. The trees should be twenty feet apart. The question of root-pruning must be determined hereafter by the behaviour of the trees.

**RANUNCULUSES.**—*Inquirer.*—You will not do well to obtain expensive florists' varieties until you ascertain by trial the capabilities of your garden and your own skill. Fortunately there are plenty of good cheap kinds to begin with, and we think you might do well with the following Turbans, namely: *Grandiflora*, *Lion d'Orange*, *Romano*, and *Turban d'Or*. Add to these the following florists' varieties, namely: *Amazon*, *Bacchus*, *Black Prince*, *Clothilde*, *Commodore Napier*, *Comte de Gloire*, *Fire Ball*, *Hermione*, *La Citoniere*, *Marianne*, *Nosegay*, *Prince de Galitzin*, *Robert*, and *Zonnewagen*. All these are cheap and good, and the least fastidious of their race, therefore most likely to succeed in your comparatively smoky district. If you succeed well with them, you can purchase more freely in future seasons.

**CYRTOCERAS REFLEXUM.**—*R. W.*—This somewhat singular but interesting plant requires a brisk heat top and bottom all winter and spring, to be saturated with moisture, and frequently syringed overhead. Keep in the stove till the blooms begin to expand, then place in an airy greenhouse, and the thing is done. Your failure is probably owing to insufficient drainage; if so, turn it out, clean the pot to one-third of its depth, fill it with crocks; lay on them a handful of the toughest fibre out of your peat; place the plant on that, and fill up with equal parts of thoroughly good turfy loam and peat, with one-sixth sand, and put in bottom-heat at once with abundance of water. *Pentas rosea* and *carnea*, beautiful plants, much neglected; treat in precisely the same way.

**PICOTEES AND PINKS.**—*A. B. R.*—The following are all good:—Twelve yellow ground Picotees: *Mrs. Hornby*, *Dr. Horner*, *Chipping Norton*, *Garibaldi*, *Jane Perry*, *Miss Nelson*, *Sir Colin Campbell*, *Royal Sovereign*, *Primrose Pet*, *Countess of Derby*, *Emperor*, *Gipsy King*. Twelve Pinks: *Attraction*, *Beautiful*, *Brilliant*, *Charles Waterton*, *Delicata*, *Dr. Maclean*, *Eugénie*, *Invincible*, *John Bull*, *Lord Herbert*, *Lizzie*, *Mrs. Maclean*, *Picturata*, *Rev. G. Jeans*.

**PLANTING AND TRAINING VINES.**—*A Young Beginner.*—Plant four vines and carry up two rods from each. A common flue will do very well, unless you intend to force early. Take the flue at as low a level as possible along the front, but somewhat above the floor, remembering that the bottom of the furnace must be two feet at least below the bottom of the flue. The flue must be nine to twelve inches in the clear, and rising slightly all the way, turning at the end to the shaft. Rafters are not needed if you can get machine-made sash-bars. Vines in ground vinerys must be so far disbudded that none of the growth is crowded, and that more fruit is not left than the vines can bring to maturity without being distressed.

*J. G. S.*—The leaves are like those of the *Manetti*, but it is impossible to say for certain from dried specimens. Seed of the *spergula* can be purchased of some of the principal seedsmen.

**LILIUM GIGANTEUM.**—*J. R.*—The soil should be kept just moist, and no more. The trees mentioned should be repotted in the spring. The *Wigandia* can be grown successfully, as you suggest.

**VINES.**—*Constant Reader.*—It is a matter of small consequence whether the roots are under cover or not. The *Alicante* (black) and *Royal Muscadine* are the two best varieties, for they are hardy, productive, and produce fruit of fine flavour.

**GLADIOLUS.**—The cultivation of this flower was fully explained in the *FLORAL WORLD* for October, 1871.







WILLIAM MACFARLANE TAYLOR

## HARDY PRIMROSES.

*(With Coloured Plate of Lady Madeline Taylour.)*

THE pretty purple variety of the common primrose here figured is the brightest in colour, and best as respects the profusion of its flowers, of the whole of this interesting family. Hitherto amateurs have paid but little attention to the hardy primroses as garden flowers, although when a rambler amongst the “ferny coombes” and copses of the West of England happens to light on a great field of primroses of all colours, which make a sort of gigantic painter’s palette in the wilderness, the discovery surprises, delights, and makes a lasting impression on the memory. Many such a wild primrose garden have I seen on the red soil in Devonshire, and never on any other soil or in any county the equal of them, although the primrose is a sportive plant in all parts of Somerset, Devon, and Cornwall. Probably some of the most remarkable displays of this kind are those on the spacious lawns in the park at Bickton, and I could tell of one who, when riding about there in search of beautiful trees, with which, of course, the place abounds, came upon a patch of pink and purple primulas covering a space equal in extent to the garden in Finsbury Square, and instantly dismounted to roll over them, to the astonishment of a staid company, and the violation of all the proprieties. Perhaps to some of our readers—aye, and perhaps to not a few—the mention of purple and pink primroses may suggest that we have got hold of something of an imaginative or apocryphal character. If such there be, we assure them we are dealing with matters of fact, and might say very much, and to the purpose, too, on the variability of the primrose, and the important subject it *might* offer to collectors of native varieties and the raisers of hardy novelties.

The common primrose, *Primula vulgaris*, is chiefly distinguished from other European primulas, such as the cowslip, polyanthus, and auricula, by the production of solitary flowers, other nearly-related primulas producing their flowers in umbels of many flowers on one stalk. The common primrose of agricultural lands is well-known by its elegant tuft of deeply-wrinkled leaves and pale creamy-yellow flowers. It is usually met with on shady banks where ferns delight to dwell, and makes a conspicuous feature in the lovely herbage of the woodside and the skirts of the coppice in the early months of the year. In this, which we may designate its normal form, it is a valuable garden plant; and not a few lovers of gardens are like Lord Bacon, in that they have taken care to have their homely retreats pleasantly besprinkled with “prime-roses, violets, anemonies, and early tulippas.” But the primrose in this normal form is a wilding; it is when it appears with double flowers, or with single flowers of some remarkably attractive hue, as in the case of the primrose here figured, that it acquires distinction as a garden plant. Now there are not less than twenty named and very distinct varieties of hardy primroses, all of them forms of *P. vulgaris*, in

cultivation. We have lately seen fifteen varieties in flower at the Hale Farm Nurseries, Tottenham, where hardy flowers obtain better attention and are grown in greater quantity and variety than in any other nurseries in the country.

The whole of these are beautiful, and form a most interesting collection, and any amateur might be proud to possess them as adornments of a half-shaded border, where they could stand for years undisturbed to attain to full development. But particularly lovely are the double crimson, the double white, the double lilac, and the double yellow. The flowers of these are perfect rosettes, which are set amidst the bright-green wrinkled leaves in a manner which we must be permitted to describe as "artistic," although it is the work of an Almighty hand, and the flowers belong more especially to the garden that the Lord hath planted. The single varieties are less captivating when inspected closely, for their flowers have not the exquisite finish of form which characterizes the double ones; but they make amends by the profusion of their flowers and the consequent bold display of colour. Amongst the twenty, there are two that must have pre-eminence for richness of colour and their peculiar fitness to be employed as bedding plants in the spring-garden. One of these is called *Lilacina*, the colour being a lovely shade of mauvy lilac. The other is *Lady Madeline Taylour*, here figured, the whole stock of which is in the possession of Mr. Cannell, nurseryman, of Station Road, Woolwich, who is now offering it for sale for the first time.

A group of beds near the windows of the house might be charmingly dressed with these hardy primulas as bedders, for they could all be transplanted to a shady part of the kitchen-garden when their flowering was over, to make room for the usual summer bedders. As we have named two as particularly beautiful, we must add that, as in furnishing a group of beds, two colours will not be sufficient, the following may be added with safety, as they flower profusely:—Single white, single yellow, single rose, and single purple. The double-flowering varieties are not adapted for bedding, but as hardy border flowers they are of the highest value; and those who love this class of plants should secure all the sorts there are in the market.

As to cultivation, it may be said they need none. A rather heavy, damp soil and a partially shaded situation are conditions favourable to their proper development. They will never make much progress in a hot, dry soil, or in a position peculiarly exposed to the meridian sun. The best season for transplanting and dividing them is the month of September; but they may be removed and divided any time, if they are handled with care, and have a little watching afterwards, until they have recovered from the operation. S. H.

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## CELERY CULTURE IN BEDS.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



CELERY culture is not attended with many difficulties, but in small gardens the results are not usually so satisfactory as one could wish, and I have thought that a few words explanatory of the most desirable system would be of considerable service to many of the readers of the *FLORAL WORLD*. I shall be as brief as possible, and confine my attention to celery-growing in small gardens.

The celery crop must not be exposed to rough treatment at any stage of its growth; for if it suffers from neglect, it will be found, when lifted for table, to be of an inferior quality, if not comparatively useless. One of the most essential points in celery-culture is to defer sowing the seed until such times as there will be no difficulty in growing the plants on vigorously from the first. It is one of the greatest mistakes that could possibly be made to sow the seed and raise the plants in heat long before it is possible to provide the necessary accommodation for the plants to keep them in a progressive state, yet it is frequently done in the gardens of all classes. If celery is required for use in August, and there is an abundance of frame-room, a sowing may be made early in February; but for crops of an ordinary degree of earliness, the last week in February, or the first week in March will be quite early enough. But for the main crop, the third and fourth week in March will be sufficiently early. For small gardens, one sowing will be quite sufficient, as it will afford a succession as long as could well be maintained in a limited space; successional sowings and successional plantings of celery are of less importance than of the majority of vegetables, for the crop ready for table in the autumn will be available for use until the following spring, provided it is protected from severe frosts.

We will therefore suppose that the latter end of March is fixed upon for sowing the seed, but it will be well to observe that the details of sowing and after management of early and late sowings do not differ in any material manner, excepting that the plants from the earliest sowing must have the assistance of a slight hotbed, and be kept under glass much longer. Sow the seed in well-drained pans, or boxes, filled with a light and rich compost, and then place them in a cucumber or melon-pit, in which a temperature of 70 or 80 degs. is maintained, as a generous warmth is of great assistance in enabling the seed to germinate quickly. The soil will require to be kept rather moist, and when the plants are well above the surface, increase the water supply, and place them near the glass to keep them dwarf and stocky. To prevent any misapprehension, I will observe, in passing, that celery seed may also be raised in any of the fruit-houses, or, in fact, in the greenhouse; but, of course, owing to the lowness of the temperature, it will be longer in vegetating in the last-mentioned structure.

February.

As soon as the plants are about an inch in height, harden them off sufficiently to bear the temperature of a cold frame. Whilst this is being done, mix together equal parts of friable loam, and partly-decayed manure, and with this compost make up a bed of about six inches in thickness in a frame placed in a warm situation. Prick them out on this bed at a distance of three inches apart, and when the planting is completed, give them a liberal soaking of tepid water to settle the soil about the roots. It will be necessary to shade the plants in bright weather, and also to keep the frame rather close during the first few days. The only other attention they will require until strong enough for planting out, will be to supply them liberally with water and to keep the frame well ventilated. After they are well established, it will be difficult to admit too much air, for celery is by no means tender after it has been properly hardened off.

The most general way of growing celery is in single rows in separate trenches. Where the space is ample for all the crops, nothing can be said against the system, and for early crops it is unquestionably the best that could be adopted. But in the case of small gardens, it is more advantageous to grow it in beds of six rows each, as by that means quite seventy per cent. more can be produced in a given space than when it is planted in single rows.

In the formation of the beds, mark out a space six feet in width, and throw out the soil on each side to a depth of two feet; then, in the bottom of the trench, put about nine inches of manure from an old hotbed, and cover with three inches of soil. They will then be in readiness for the reception of the plants; but it is desirable to prepare the bed a short time beforehand. Some little diversity of opinion exists as to the proper distance at which the plants should be put apart, but by planting them nine inches apart, in rows fourteen inches from each other, good heads will be secured without an inch of the space being wasted. A dull, showery day should, if possible, be selected for putting the plants out, as they will then suffer very little indeed, provided they are well watered, and are not allowed to suffer for the want of moisture until they are established. It will not always be desirable to wait for showers, but when done in bright weather, a slight shade of mats, canvas, or branches of evergreen laid over them, will be highly beneficial, if supplemented with moderate sprinklings of water overhead every evening. It is always preferable to defer the systematic earthing-up until the plants have made considerable progress; for when earthed-up early, the growth is checked considerably.

During the progress of the crop an occasional dressing of well-pulverized soil spread between the plants will be of considerable assistance. In earthing the celery up, it is important not to put too much soil at one time, because of the check it gives to the plants, and also to do it in such a manner that the soil will not reach the hearts. First of all, tie a piece of old bast rather loosely round each plant, just to keep the leafstalks close together, and take two light boards, five inches in width, and the same length as the bed. Supposing we commence with the two end rows, the boards are

placed between them, and the space between the boards is filled with soil to a depth of four inches. When this is done, the board nearest the end is drawn out gently and put on the other side of the second row, against which the other leans. As soon as this is accomplished, the second board is drawn out and placed against the third row, so as to keep the soil in its place whilst it is being filled in between the second and third rows as was done between the first and second. This process of shifting the boards and filling in the soil is repeated until all the rows have been earthed up. In drawing out each board the soil should be placed nicely about the plants with the hand. By the use of boards as here advised, a large bed can be earthed up in a very short space of time. At each operation, the soil should be taken equally from both sides of the bed, and be also well broken up with the spade before it is used for filling in.

The best sorts for table are, Williams's *Matchless Red*, and Turner's *Incomparable White*. The large-growing sorts, in the way of Hooley's *Conqueror*, are too coarse for the table.

## THE VARIETIES OF KALE, OR BORECOLE.

Report on Kales grown in the Garden at Chiswick in 1871-2. By ROBERT HOGG, LL.D., F.L.S. Pomological Director to the Royal Horticultural Society. From the Society's "Journal."



It is exactly ten years since the last trial of kales was made in the Garden of the Society. That was a very partial one in comparison with this upon which I am now about to report, the number of varieties being much less, and the various names under which the different varieties were received greatly more numerous. When I reported on the same subject in 1862, I was struck by the amazing confusion in which the kales were found; and my surprise has not been lessened by the present trial.

From the very much fuller character of this year's experiments, I have been enabled in many cases to add to, and in some to correct, those of 1862. This I have been enabled to do by the very prompt and liberal manner in which the members of the seed trade have placed their collections at the disposition of the Society.

It is proper here to state that, although many errors in nomenclature are to be found in this report, apparently originating among the seedsmen, no blame is to be attributed to them, nor is there to be any impeachment of their good faith on that account; for this confusion of nomenclature has existed not only for years, but for generations, and, however anxious they may have been to correct it, the task was one most difficult of accomplishment.

Now, however, that something like order has been attained, I trust that a more general concurrence in nomenclature will be maintained.

**ASPARAGUS KALE.**—The original asparagus kale of a century and a half ago was a sprouting broccoli, which was introduced from

Italy. It received its name from the young shoots, terminated by a "button," bearing somewhat of a resemblance to the young shoots of asparagus. In course of time the name gradually ceased to be identified with the broccoli, and was applied to another variety of kale, also introduced from Italy, called Milan kale, or *Chou de Milan*, which has the property of throwing up in the spring a profusion of long succulent shoots, which, when fully grown, resemble the shoots of asparagus. But there are several other varieties of kale to which the name is applied; and as there seems no uniformity on the subject, I shall quote the varieties which different seedsmen regard as asparagus kale.

Messrs. Minier, Nash, & Nash are correct in supplying Milan kale. Messrs. Fraser and Mr. B. S. Williams supply Buda kale. Messrs. Back & Co., Messrs. James Carter & Co., Messrs. Henry Clarke & Sons, and Mr. George Gibbs, supply Couve Tronchuda. Messrs. Wrench & Sons, Messrs. Sutton & Sons, Messrs. J. & C. Lee, Messrs. Nutting & Sons, and Mr. William Paul, supply Siberian kale; and it is to be remarked that, as all these varieties produce an abundance of succulent shoots in spring, the name is not misapplied; still it would be as well if it were confined to one particular variety, and that this should be the Milan kale.

**BUDA KALE.**—This is one of those varieties that are called asparagus kale. It is very dwarf-growing, the stock being not more than six inches high, and very leafy. In this condition it remains all the winter; and in spring numerous long shoots are produced, some of which are from two to two feet and a half in length. The leaves are smooth and very much waved. There are three varieties of Buda—the *green*, the *purple*, the *lettuce-leaved* or *strap-leaved*. There is no difference, except in colour, between the green and the purple varieties; but the lettuce-leaved is very distinct, the blade of the leaf being decurrent down the whole length of the footstalk, resembling in that respect the leaf of a lettuce, or of Laing's Swedish turnip. As regards utility and fertility, there is no difference; and all are equally hardy.

The Buda of Messrs. Minier, Nash, & Nash, and of Messrs. Wrench & Son was true; that of Messrs. G. Gibbs and of Messrs. J. & C. Lee was Siberian; and that of Messrs. A. Henderson & Co. was Couve Tronchuda. It was also received from the following sources perfectly true, under different names, thus:—From Messrs. Fraser and Mr. B. S. Williams the purple variety as asparagus kale. From Messrs. Carter & Co. and Messrs. Wrench & Son as Delaware. From Messrs. Wrench & Son as Jerusalem. From Messrs. A. Henderson & Co., and I. Cattell as purple Jerusalem. The green variety was sent by Mr. J. Grant as Lapland kale, by Mr. Cattell as Egyptian, by Messrs. Sutton & Son as New Winter kale, and by Messrs. Vilmorin, of Paris, as Chou à faucher. The lettuce-leaved variety was sent by Messrs. Henry Clarke & Sons as Jerusalem kale.

**COTTAGER'S KALE.**—It seems to be generally agreed that the cottager's kale is to preserve its undisputed individuality, as there were no instances, throughout the trial, of this excellent variety being received under any other name.



**CURLED KALE.**—By far the most popular and most exclusively cultivated of all the kales are the curled or *Scotch kales*, sometimes also called *Curlies*, *German Greens*, or *Borecole*.

There are four distinct forms of the curled kale—the dwarf and tall green curled, and the dwarf and tall purple curled. Those which are most generally cultivated are the green forms; and the great object of cultivators is to obtain these with the leaves as finely and as much curled as possible; and, in proportion as they are so, the more or less is the stock appreciated. Hence has arisen the great number of names under which they are sold. From Messrs. Drummond Brothers and Mr. Cattell, the green form was received as *Prince of Wales*; from Messrs. H. Clarke & Son and Messrs. Carter & Co., as *Hearting kale*; from Messrs. Hurst & Son as *Cabbaging and Tall curled*; from Messrs. Sutton & Son as *Sclater's New Cabbaging*; from Messrs. Carter & Co. as *Feathered Scotch and Abergeldi*; from Messrs. Lawson & Son as *Superb Parsley curled*, *Williams's Matchless*, and *Pontefract green curled*; from Messrs. Stuart & Mein as *Tynningham*; from Mr. William Paul as *Jackson's late curled*; from Messrs. Fisher, Holmes & Co. as *Dwarf green curled Handsworth*; from Messrs. Veitch & Son as *Veitch's dwarf late curled*; from Messrs. Minier, Nash & Nash, and Messrs. Beck, as *Dwarf green curled Canada*; from Messrs. F. & A. Dickson as *Dickson's Imperial dwarf curled*; and from Messrs. Barr & Sugden as *New moss curled*. All of these differed from each other only in the degrees of intensity with which the leaves were curled; and in this respect the *New moss curled* of Messrs. Barr & Sugden was remarkable.

The Dwarf purple form was sent by Messrs. Carter & Co. as *Jerusalem kale*, and by Messrs. A. Henderson & Co. as *Lapland*; the Tall purple from Messrs. Wrench & Son as *Brown Borecole*.

**JERSEY KALE.**—This is also called *Cesarean cow-cabbage*, *Tree-cabbage*, and *Jersey Borecole*. It is a tall-growing plant, attaining the height of four or five feet, the stem clothed with long, broad glaucous green leaves, with long foot-stalks. In spring it throws out numerous long tender shoots, with which cattle are fed. It is never grown as a garden vegetable.

**LONG SCOTCH KALE.**—This was received from Mr. William Gorrie, of Edinburgh, as the true “Long Scotch kale.” It is the normal form of the wild cabbage, as it is found on the Dorsetshire coast. It was sent by Messrs. Vilmorin & Co., under the name of *Couve murciana*—and by Messrs. Sutton & Son, of *Buckman's hardy winter greens*.

**MARROW KALE.**—This is the *Chou moellier* of the French—a form of the Jersey kale which produces a long thickly-swollen stem like a gigantic cigar, the swollen part being filled with a mass of tender pith. There are three varieties of the Marrow kale, distinguished as the *white*, the *purple*, and the *small*. The white grows from four to four and a half feet high, the stem being smallest at both ends, and thickest in the middle, where it is about a foot in circumference in the largest specimens.

**MILAN KALE.**—The name by which this is often called is *Chou*  
February.

*de Milan*. It is unfortunate that it is so ; for *Chou de Milan* is the name given by the French to Savoy. Except that they both belong to the same genus, there is no resemblance whatever between the Milan kale and a Savoy. The Milan kale produces a stock from eighteen inches to two feet high, clothed with plane bluntly-toothed leaves, and terminated by a close rosette of leaves forming a small incipient head. In spring it throws out a large quantity of fine succulent shoots, which, when cooked, form one of the most delicious dishes of the winter-green class ; and it is from this circumstance that the plant has been called *Asparagus kale*.

From Messrs. Beck & Co., G. Gibbs & Co., Nutting & Sons, Minier, Nash & Nash, and Mr. Cooper, it was received perfectly true under the correct name. There is a purple variety received from Messrs. Vilmorin, under the name of *Flanders purple*.

**PALM KALE.**—The stem is two feet to two and a half feet high, clothed with large oblong obovate leaves, the blade of which is decurrent the whole length of the footstalk, of a dark green colour, which curve gracefully upwards and outwards, giving the plant the aspect of a miniature palm. In the spring it throws out a profusion of long slender shoots, which are of no value as a vegetable. After these shoots are produced, the plant entirely loses its ornamental character. It was received from Messrs. Vilmorin under the name of *Chou Palmier*.

**RAGGED JACK.**—Like the Cottager's kale, this seems to have few synonymes. Its character is sufficiently distinct to render it easy of identification, being a very dwarf variety, with a stock not more than four to six inches high, and leaves which are deeply lacinated, the segments being trifid or multifid. It is generally of purple colour, and occasionally green. In the spring it produces a great quantity of tender shoots, which are much esteemed as a vegetable. It was received from Mr. B. S. Williams as *Camberwell Borecole*.

**SIBERIAN KALE.**—This is one of the hardiest and one of the best of all the sprouting kales. It is also very distinct, and can never be confounded with any other variety. The stock is very dwarf, being only four to six inches high. The foliage is always green. The leaves are sinuated, coarsely serrated, and plaited on the margin. In spring it produces a large crop of tender shoots, from a foot to fifteen inches in length.

This is one of the varieties the nomenclature of which is very confused. From Mr. B. S. Williams it was received quite true as "Siberian" or *Lapland* ; from Messrs. Wrench & Son, Sutton & Son, William Paul, J. & C. Lee, and Nutting & Sons, it was received under the name of *Asparagus kale* ; from Mr. George Gibbs, as *Buda kale* ; from Nutting & Son, A. Henderson & Co., J. Cattell, and Drummond Brothers, as *Delaware* ; from Messrs. Minier, Nash & Nash, Sutton & Sons, G. Gibbs, J. & C. Lee, Carter & Co., and Cooper, as *Jerusalem* ; from Messrs. Carter & Co. as *Acme* ; and from Mr. Cattell as *Curled Jerusalem*.

**WOBURN KALE.**—This closely resembles the wild cabbage and long Scotch kale ; but it appears to be of a more perennial character. It may be propagated by cuttings, as, indeed, all the other varieties

may ; but it is more woody and shrub-like in its growth. It is not worth cultivating, except in very northern and exposed situations, as it is very hardy, and will stand more rigorous winters than perhaps any of the other varieties.

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## USEFUL HINTS ON SEED-SOWING.

BY JAMES CALVERT.



O ver-estimate the importance of sowing vegetable and flower seeds at the right moment and in the proper manner would be difficult, and I feel that no apology is needful for offering a few suggestions which cannot prove otherwise than useful. It is, however, not only necessary to sow the seed properly, but it is of the utmost importance to buy it early in the season, so that it will be at hand when required for sowing. Very frequently the seed is not ordered until a day or so before it is wanted, and owing to the great pressure upon the seed houses at that particular moment, the order is not executed until the opportunity for sowing it is lost. The English climate is so changeable during the early part of the year, that if a favourable opportunity is lost it may not, perhaps, occur again for some weeks, or perhaps not until it is too late to sow that particular seed, and the chances of a crop lost. The main order should be handed to the seedman early in February, so that if there is a few days' delay it will not be of much consequence.

On the subject of purchasing seeds much might be said, but space will only allow me to give a few plain directions, and the first of these is—Buy of a respectable house, if you have to pay a few shillings more for your annual supply ; better by far to do this than to buy cheap seeds, and have nothing but failures and vexations hereafter. Some people do not attach sufficient importance to the subject of buying good seed, and consequently they are sufferers in the end, for it often happens that a crop fails ; and, lastly, I would say, buy enough. I am not an advocate for an extravagant seed order, but for all ordinary outdoor crops every packet should be large enough to make two sowings if only one is wanted ; and then, should the first fail, which is sometimes the case, the remainder will serve, and perhaps save the loss of a crop altogether ; whereas, if the amateur has to wait two or three days or a week for a fresh packet of seed, the season for sowing will be past, and the crop for that year lost. These are serious considerations, when we consider the difficulties which attend the raising of seeds out of doors in early spring.

The observations I am about to make on the subject of seed-sowing will I hope be acceptable to all readers, for it is an important operation, and when injudiciously performed leads to many disappointments. Perhaps the first consideration in connection with seed-sowing is that all should understand that both heat and moisture

are essential for the germination of seeds, as well as an absence of light. The absence of light is not perhaps so important a point as the others, but for a quick growth it is essential that it should be excluded—and, indeed, as a rule it must be done. Then as heat and moisture are the two principal agents in exciting vegetation, we should, when contemplating seed-sowing, also consider what means we have at hand, if the season does not furnish it, of supplying these agencies in all outdoor crops. These considerations are not so serious, but it is very certain that, for the majority of our kitchen garden seeds, we must wait till the earth is sufficiently warm before we commence seed-sowing, or from the want of sufficient heat many of them will perish.

To the too early sowing of small seeds in a cold, uncongenial soil, must be attributed many of the failures of which we hear, if the seeds are in the first instance good. The uninitiated are too often misled by a few warm spring days which usually occur in February and March; and they set to work in earnest, prompted by an anxious desire to be early with their work, and so commit one of the greatest mistakes by sowing large batches of seeds, which would have been better kept in the drawers for at least a fortnight longer. In their enthusiasm, they forget for the time that frost and snow may yet visit us severely, and not only destroy many of the subjects committed to the tender mercies of the elements, but also blight all their hopes and anticipations of future success.

March is usually considered to be a month of seed-sowing, but how much of this work is there not left till April by all those who have learnt to distrust so changeable a season as the month of March; for the majority of our springs are cold, and even well-established subjects have usually to submit to a severe trial. How much more so must it be to the tender cotyledons of early-sown seeds. I think if we give the subject a little serious consideration, we cannot fail to be convinced that it is a mistake to commit to a cold damp soil thus early choice seeds; for even if the season should be moderately favourable, the advantages to be gained are but few. We must, however, not lose sight of the naturally-favoured positions of some few gardens; and at the same time we must make an allowance, or make for ourselves a distinction between light and heavy soils. But in all such cases the anxious cultivator will soon learn from observation what is applicable to his own case.

Of the very few crops which belong to the kitchen garden that are actually benefited by early sowing, I can only instance the parsnip and the onion; these want less warmth to excite them, and they are all the better if they can become well established before the summer sets in. But as to the more ornamental subjects of the flower garden, I am convinced the month of March is too early for even the hardiest of them; the second week in April is soon enough for all reasonable people, and by deferring the general sowing till that time, they will have less to say about dead seeds. What pleasure can it be to any one to see a few straggling plants here and there, struggling for an existence against the storms and cutting winds of a cold April day, and what are they if they do survive it?



They are weak, puny things, giving but a scanty display of flower, while their near neighbours a month younger are stout and healthy in appearance, and will outlive the others some considerable time.

But perhaps it is not in those instances which I have referred to where the greatest failures have been ; however, this much we know, that seeds sown out of doors are less dependent on our attention than tender subjects which require the heat and protection of a house to vegetate in, and it is here that extra care and vigilance are required ; and from what I have learnt from observation, I can pretty well define an amateur's position when using such appliances for the purpose, and with a view to assist them I will give a few useful hints which ought to be acted upon when sowing choice and tender seeds.

Seed-pans are generally in use for this purpose, which must be securely drained with crocks, upon these a layer of rough soil, and then some fine sifted earth, with a fourth part of sand mixed with it. The proper depth of soil being put in the pan, it should be well watered before sowing, so that when the seed is sown and covered in with a very light sprinkling of fine earth, a gentle dew from the syringe will make it sufficiently damp. In whatever position it is placed, it should be shaded from bright sunshine till the seedlings show themselves. We have known individuals put up a slight hot-bed for the purpose, and immediately the pans are in the bed they cover the whole with a mat over the glass. But this is an erroneous practice, for by so doing they shut out the heat of the sun, which if allowed to shine upon the glass, the internal heat is much greater, and a quicker growth must necessarily follow. The better plan by far is to push down the lights, and put over the whole batch of pans a covering of old newspaper. This will be an effectual shading, and at the same time greatly arrest evaporation, so the less watering will be required, and no impediment will be thrown in the way of the solar heat penetrating and heating the internal air of the frame.

The plan of earthing all young seedling plants at intervals previous to their removal from the pan or bed is unquestionably a good one, and no doubt it is a point too often neglected by many of us, but its utility is nevertheless the same. It is well known that very many of our productions, when raised from seed, in the first stage of their growth incline to be weak and long-legged, especially those which are raised in heat. Now there is no better way of strengthening the plants, and at the same time preventing this tendency to long-leggedness, than to give them a gentle earthing. For very small and tender plants, there is nothing equal to clean dry silver-sand shaken lightly over them when the plants are dry ; this should be repeated every fifth or sixth day till the whole are pricked off. For all out-door subjects, such as all the Brassica tribe, a much coarser material will do. I generally use charred earth ; but in this earthing system there is an important point to bear in mind, and that is, never begin to do it unless you can keep up the supply—at least till the third time, for as soon as you commence earthing fresh root action begins, and the young rootlets will come to the top for this extra nourishment, and if these are not frequently and repeatedly covered

over by the application of fresh material, the first few hours' scorching sun will dry them up. The same rule holds good about applying the earthing when the leaves of the plants are dry, as in the in-door subjects. It is a good plan first to give the seedlings a soaking of water before this dusting is given, and it is a good prevention, too, against mildew, also against the attacks of vermin; and, lastly, it is a sure and certain method to obtain short-legged, stocky plants, with a mass of fibrous roots, which, if carefully preserved, will allow them to be removed with little or no injury.

## ACHIMENES FOR CONSERVATORY DECORATION.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



**A**MONGST the large number of beautiful flowering plants adapted for the embellishment of the conservatory during the latter end of the summer season, the *Achimenes* deservedly hold a high place. They are not, however, grown so generally as they might be, because of the belief which exists that they cannot be grown successfully without the assistance of a stove. It is true they require a higher temperature during the earlier stages of growth than the ordinary greenhouse affords, but they do exceedingly well in a cucumber or melon pit, or in a vinery or peach-house started early. There are, therefore, few gardens in which they may not be well grown, as nearly every one who has a garden at all tries to have a few cucumbers or melons. There is one important point worth noticing when speaking of their cultivation in either of the above-mentioned structures, and that is—they are very accommodating as to the time they are started into growth, and provided the roots are kept in a comparatively cool temperature, they need not be started until it is quite convenient to give them the temperature suitable for insuring a vigorous growth.

The compost to obtain a free growth from the first must be rather light and rich, and to insure these essential conditions, well incorporate together two parts turfy loam, one part fibrous peat, one part leaf-mould, one part well-decayed manure, and a sixth part of silver sand. If the loam should happen to be deficient in fibrous matter, a small portion of cocoa-nut fibre refuse may be mixed with the soil to keep it more open than it would otherwise be; it is also a very good plan to add a small proportion of clean crocks well broken up, or a few nodules of charcoal. The peat and loam must be chopped up rather fine, but only the large woody roots occasionally met with in the peat must be removed from it. The compost when used should be moderately moist, to prevent the necessity of applying water for some time after the roots are buried in the soil; and it will be of considerable assistance in promoting an early growth if the soil is warmed, by placing it in the structure in which the roots are

to be started a few days before it is used. It is certainly bad practice to use compost in a cold and wet state; for apart from the injury likely to be done to the roots, a loss of time must take place, whilst the soil is becoming of the proper temperature.

There are several good ways of potting the roots, but as it would require considerable space for the description of all of them, I shall confine my attention to the most simple, by which successful results may be obtained. For small conservatories, specimens grown in six-inch pots will be quite large enough, and in every way suitable. It will perhaps be desirable to grow a few in pots one size smaller, as they are very useful for standing in vases in the drawing-room, and some of the varieties with bright flowers have a very effective appearance on the dinner-table. First of all place in the bottom of the pots about two inches of crocks broken rather small, and cover them with any rough material that may be at hand, then fill the pots with the prepared compost to within about an inch of the rim, pressing it firm as it is filled in; make the surface level, and lay the roots regularly over it, at the rate of twelve for the larger and eight for the smaller sized pots. Cover the roots with about half an inch of the finest portion of the compost, and place the pots in a pit or house where a temperature of about 70 deg. is maintained. The soil must be maintained in a moderately moist condition until the young plants begin to show above the surface, and then the water supply will require increasing. They enjoy a rather liberal amount of atmospheric humidity during the early stages of growth, and it will be of great assistance if they are sprinkled overhead once a day with tepid water. In all cases, it will be well to remark that the water must be a few degrees warmer than the temperature of the house or pit.

The after management consists in supplying the plants with water as they require, sprinkling them overhead occasionally, and tying out the shoots. The sticks used should be neat, and put to the plants when the growth is about three inches in height. The shoots can then be tied to the stakes as required, and when the plants come into flower the tops of the stakes can be removed if they are higher than the shoots.

After the plants have made considerable progress they should have a place rather near the glass, and the foliage screened from the sun. After the beginning of May they can be grown in any structure that can be kept rather close, to enable the cultivator to husband the sun-heat, and afford the plants the desired degree of warmth. As they come into flower remove them to the conservatory, where, with ordinary good management, they will remain in good condition for a very considerable period.

The old established varieties are so well known as to render it unnecessary to allude to them; and I will therefore content myself with giving the names of the newer introductions, which should be added to the most select collection. The names and most distinctive colours are as follows:—

*Admiration*.—A good variety, of free robust habit; the flowers are of immense size, and of a rich deep rose colour; free blooming and attractive.

February.

*Advance*.—Flowers deep reddish purple, with a light spotted eye, shaded towards the margin.

*Argus*.—Colour rich plum, large deep orange eye, spotted with carmine.

*Aurora*.—Flowers of a rich heavy scarlet, with light yellow eye; very effective.

*Celestial*.—Flowers of a very light blue colour, with attractive centre, the upper part of the eye being rich purple.

*Cherub*.—Flowers white, tinted with blue on the margin of the lobes; upper part of the eye bright blue, and the lower part primrose.

*Diamond*.—A variety in the style of *Ambroise Verschaffelt*, but having the purple blue radiation and blotch confined to the centre of the flower.

*Eclipse*.—Bright orange red eye, beautifully spotted with carmine, good habit and free bloom; desirable.

*Elegans Flore-pleno*.—Flowers large and fine, of a bluish violet colour, having five or six petals in the centre in the form of a rosette.

*Excelsior*.—Plum colour, large and fine, good habit, very distinct.

*Gibsoni*.—Flowers mauve, fringed on the margins of the petals, the tube white outside, tinted with light lavender blue towards the base.

*Grandis*.—Flowers deep violet colour, with a rich orange eye, finely spotted and shaded with carmine.

*Magnet*.—Orange, spotted with crimson, deep carmine circle and spotted eye.

*Marvel*.—Flowers bright rosy violet, with light throat, darkly spotted at the base; exceedingly showy and attractive.

*Masterpiece*.—Flowers smooth and well formed, and of immense size; colour rich rose, with violet shade; throat white, darkly spotted at the base; showy and effective.

*Mauve Queen*.—Large mauve coloured flowers, with a conspicuous light chocolate eye; splendid form and fine substance.

*Oberon*.—Bright blue, upper portion of the eye purple, white centre.

*Pink Perfection*.—Flowers large, colour magenta rose, the upper part of the eye rich carmine, the under lobes beautifully rayed with violet.

*Raphael*.—Fine rose colour, very free bloomer.

*Rollisconi*.—Flowers large, blue, with light throat, prettily spotted.

*Rose Queen*.—Flowers rosy lake, shading to purple, with orange throat; compact and good.

*Stella*.—Flowers large, clear magenta, orange eye, spotted with carmine; distinct and beautiful.

*Williamsii*.—Free-blooming, of good compact and branching habit, producing large flowers, vivid scarlet, with orange yellow throat; free and good.



## CULTIVATION OF BROCCOLI AND CAULIFLOWER.



It is customary in gardening books to treat of the Broccoli and the Cauliflower as altogether distinct, and requiring different modes of cultivation. This is a mistake—they are not distinct—they differ in name only ; and as to cultivation, whatever rules apply to one, apply with equal force to the other. That we may be clearly understood, we are bound to say that the term “cauliflower” may be conveniently applied to the most perfect white curd-like varieties that are cut during summer and autumn, as they are at once the most handsome and the most delicate-flavoured. But there is no inherent impropriety in regarding broccolis and cauliflowers as members of one class of vegetables, and the well-known Walcheren variety may be instanced in illustration, for this is acknowledged to be either a broccoli or a cauliflower, at the discretion of the cultivator. If it be asked how the supposed distinction originated, it may be answered that the varieties of broccoli differ in degrees of hardiness, and the most tender of them require to be sheltered during winter ; and as only such of the finest quality are worth the trouble of protecting, these form a group which it is convenient to separate from the rest as cauliflowers, although in every essential particular they are as truly broccolis as any of the more hardy and less elegant varieties.

Broccolis and cauliflowers require a rich deep soil. The cultivator who seeks to obtain a supply from a poor soil will be disappointed unless he happens to be favoured with a hot summer, and gives the plants regular and copious supplies of liquid manure. Only on good living can handsome heads of broccoli be produced, and, therefore, the first step towards a good supply is deep digging and abundant manuring. In our heavy damp clay land, all the varieties attain to their highest possible quality, but a rather light, well-tilled loam is to be preferred for varieties that produce their heads during winter and spring. However, we have cut abundance of the finest broccoli during ten months out of twelve, the times of scarcity being June and December ; and though we have seen our plantations under water for days together, and at other times stiffened with fifteen degrees of frost, we have rarely suffered from the trials the plants are exposed to on our cold soil in the winter season. On those old garden soils that produce club, the seed-beds should be prepared by digging in lime or plaster, and the ground for planting out on should be prepared by double digging, and putting a heavy layer of good manure between the two spits. By such management the club will be exterminated, and the land will be constantly increasing in cleanliness and strength. As there is much to be said on the subject before us, and our aim is to convey the greatest possible amount of information in the fewest possible number of words, we shall arrange our observations under suitable headings, and the first will be—

**BROCCOLI AS AN ORDINARY GARDEN CROP.**—By good management broccolis may be cut during eight or nine months out of twelve,

February.

and entail no more trouble than a crop of cabbage. It is best to make three sowings—the first as early in March as the state of the heavens and earth will permit, the other two in the first week of April, and about the middle of May. Sow in drills in the same way as cabbage, and on as good a seed-bed as can be prepared for them. From these three sowings a constant succession of plants will be obtained, and they should be planted out as fast as they become large enough on land heavily manured and thoroughly well prepared by deep digging. The large growing sorts should be in rows three or four feet apart, and the plants three feet apart in the rows. Moderate growers, such as the Walcheren, may be two and a-half feet each way, and smaller sorts, such as the Cape, may be two feet apart each way. If the spring is late, the March sowing will be comparatively worthless, but the cost of seed is trifling, and it is always advisable to sow a pinch of broccoli with the other small seeds in March, for the chance of some strong plants to put out early. It is a great help to the supply if a sowing of Walcheren or Hammond's Improved be made in February in a seed-pan under glass, and the plants carefully handled for planting out in April. If at any stage the plants receive a check, or if allowed to grow to any considerable size in the seed-bed, they will fail at last, more or less. Therefore, showery weather should be chosen for planting out, but rather than delay too long waiting for showers, put out the plants when they are ready, and by shading and watering, help them to take hold of their new stations quickly, without, as we say, "feeling the move." The after culture consists in leaving them alone, for they will not even require water. Though if extra fine heads are desired, and the summer is hot and dry, or the soil too poor to do them justice, water must be given, and, in the case of a poor soil, the water must be flavoured with some nutritive material, such as guano, or drainings from the manure heap. In those tremendous summers of 1868 and 1870, we had as fine crops of broccolis and cauliflowers as in the rainy summers that preceded and followed them, but not one had any artificial waterings except for a few days after being first planted out. But then ours is a very deep, heavy, and productive soil, and for broccolis we assist it by laying a coat of fat manure between the two spits, as the trenching proceeds. Supposing a good selection to have been made from the seed-list, you will begin to cut nice broccolis in August, and continue cutting until frost stops the supply, which, perhaps, will not occur until January. Towards the end of February, if the weather is mild, the supply will be renewed, and will increase as the spring advances, and be at its height during April, and will come to an end during the latter days in May. Plants raised from seed sown under glass in February, and carefully managed afterwards, may give nice heads in July, which enlarges the scheme by one month in starting, and plants that have stood in a north aspect all winter may not flower until June, and this will enlarge the scheme by a month at winding up. Nevertheless, by what may be termed the rough and ready way of growing broccoli, there must be a break in the supply. To ensure continuous supplies, other and more troublesome methods of procedure must be

resorted to. This brings us to another section of the subject, namely,—

**BROCCOLIS AND CAULIFLOWERS ALL THE YEAR ROUND.**—To insure a continuous supply, there should be three sowings of Broccolis, as above advised, and a dozen sorts, at least, should be grown. But Cauliflowers must be grown also, and there should be three sowings of these, one at the end of August, another at the end of September, and another in February. In the far north, the August sowing will be most useful; in the far south, it is not advisable to sow until the beginning of October. It is impossible to advise for every climate, but this rule may be useful, that large plants are not to be desired before winter, and, therefore, a little judgment must be exercised in determining the dates of sowing. As soon as the plants are large enough to handle, they should be potted or planted in a bed in a frame in rather light soil, and be kept well aired all the winter to prevent spindling or rotting at the collar. As they will stand five, or even seven, degrees of frost without harm, it is not advisable to keep them closely muffled up at any time during winter; for, indeed, if they are weakened by coddling, they will in the end come to no good. The February sowing should be aided with a gentle heat, and the plants potted as soon as large enough, and after about ten days' enjoyment of a greenhouse temperature to assist them in filling the pots with roots, should be removed to a cold frame, and be gradually "hardened" preparatory to planting. Put out the autumn-sown plants first, and shelter them if the weather is bleak, but it is better to wait a week or two, and even to shift a lot into larger pots to keep them growing than to plant too early, for the check of exposure to cold, may cause them to "button," that is, produce heads the size of a florin, or crown-piece, of no use at all. From these several plantations you ought to cut fine heads from June onwards far into the autumn.

Now, let us suppose you have by some accident lost your autumn sown stock, and are speculating how to gain time, and keep up the supply by some other method. It would in this case be a good plan to sow in the first week of February and the first week of March a pinch each of Walcheren, Purple Cape, Hammond's White Cape, and Beck's Early Dwarf, and carefully nurse them, so as to be enabled to put out strong plants at the earliest moment the weather will permit. It may be worthy of notice, too, that all the foregoing sorts are worth trying for supplies in May and June, by sowing them in autumn, and planting them out in cheap protectors, such as Boulton's, or in ground vinerys of wood or brick. In March they should be thinned to twenty inches apart; the thinnings planted out, and those remaining left to flower in the frames. It would be necessary to give plenty of air, and to take the glass off entirely at the end of April.

There yet remains the depth of winter to be provided for. It is important, therefore, to bear in mind that broccolis in flower may be kept a long time in perfect condition under cover during winter. If, therefore, in the latter days of December there is a good supply of nice heads of Walcheren, or any other good sort on the ground,



take them up, with roots and all complete, and plant them close together in dry earth in a shed, or any other suitable place from which they can be obtained as wanted. The winter supply is a question of weather as regards outdoor cutting, and of prudence as regards cutting under cover. In a mild open winter there will be plenty of nice broccolis turning in during January and February, provided suitable sorts are on the ground to produce them.

WINTER CULTURE demands a paragraph, because broccolis are considered tender things. It is customary in November to "lay them down." This process consists in heeling them over with their heads to the north without in any serious degree disturbing their roots. The practice may be needful in districts where the winters are usually more severe than in London, but on our cold wet clay in the valley of the Lea, five miles north of the metropolis, it is altogether unnecessary, for we grow broccolis largely, and never lay them down, and our losses in severe winters are really of no material consequence at all. Another practice preparatory to winter protection is to sprinkle the ground between the plants with salt, at the rate of ten or twelve bushels to the acre. This is done early in October, and is certainly not a waste of labour or of salt, for the result is a wholesale destruction of vermin, and a consequent protection of the plants from their ravages, during those mild winter and early spring days, when slugs and other such come forth in troops, and eat out the hearts of the best vegetables in the garden. It is worth remembering, too, that the salt is worth its cost as manure, and its presence in the soil will benefit the next crop.

WALCHEREN BROCCOLI demands a note, because of its distinctness and value. It may be sown at almost any season, and cut at almost any season. Indeed, we know not what a master of broccoli culture might do with it, if supplied with good seed, and denied a supply of any other. He could certainly, by good management, cut from it beautiful white heads of medium size very nearly all the year round, and we think the whole circle of the year might be compassed with it in a garden where all needful appliances were at hand. As it will not endure severe frost, it is rarely cut from open ground plantations after the end of the year, or before the end of July.

SPROUTING BROCCOLI also needs a separate paragraph, as it is not to be regarded as a high-class vegetable, though extremely useful in the cottage-garden. This should be sown early, and planted out early. We give our sprouting broccolis a space of four feet between the rows, and three feet between the plants, and then their leaves overlap, and we can scarcely go amongst them without doing mischief. As for the produce, it is enormous. The old Purple Sprouting is the best. The White Sprouting is useless, and the Late Sprouting scarcely worth having.

QUALITY.—Some of the sorts are described as having "leafy heads." This means that a considerable number of leaves peep up among the intersections of the flower. It is a fault, but quite a small one. The largest sized broccolis are usually considered the best. But small heads are preferable to large ones; though great



size is not a great defect, provided the form and texture are what they ought to be. In the spring of the year 1872, a correspondent sent us a head of Cattell's Eclipse that weighed 21 lbs. It was remarkably handsome; a wonder to behold. It was carefully cut from as required, and made five dishes on five successive days, and, from first to last, as a table vegetable, was about as perfect as any broccoli ever eaten, and in every case the fifth part came to table as complete as an individual head. As to colour, it is impossible there should be two opinions. The whiter the head the better, and the texture should be fine, and firm, and close, not a gap anywhere, and the general outline hemispherical. The Purple Cape is invaluable for its earliness, and we cannot do without it; but its colour is faulty, and we should be well off if we had a white Cape to equal it; but we have not, though Hammond's White Cape is good.

SELECTION OF VARIETIES. — The following are probably the best broccolis in cultivation for general purposes; they are selected from a hundred sorts grown on our trial ground last year:—*Baskett's Late*, in use from March 27 to April 16. *Brimstone*, in use April 5 to April 20. *Brown's Incomparable Hardy*, in use April 2 to April 30. *Carter's Champion*, in use April 3 to May 18. *Cattell's Eclipse*, in use April 13 to May 20. *Early White*, in use April 6 to April 26. *Grainger's White*, in use Feb. 28 to March 28. *Hammond's Improved*, in use Sept. 4 to Dec. 1. *Large Late White*, in use April 6 to April 26. *Lake's Fine Late*, in use April 20 to May 18. *Maber's Giant*, in use March 10 to April 15. *Penzance*, in use Feb. 28 to April 2. *Reading Giant*, in use March 17 to April 10. *Snow's Winter White*, in use April 2 to April 15. *Sutton's Superb*, in use Feb. 28 to April 12. *Walcheren*, in use Aug. 15 to Dec. 1.

From the foregoing sixteen we will select six, and they shall be *Walcheren*, *Grainger's*, *Sutton's Superb*, *Lake's Late*, *Carter's Champion*, *Cattell's Eclipse*. The best cauliflowers are, *Frogmore Forcing*, *Early London*, and *Lenormands*.

For special purposes the following deserve attention as distinct and good: *Autumn Purple Cape*, and *Hammond's White Cape*, for planting close and insuring early supplies. *Beck's Early Dwarf*, *Hammond's White Cape*, and *Miller's Dwarf*, for frame culture. *Carter's Champion*, *Cattell's Eclipse*, *Dilcock's Bride*, *Hammond's Improved*, *Hampton Early White*, *Late Goschen*, *Maber's Giant*, *Malta*, *Reading Giant*, *Sutton's Superb*, and *Wandlass Wonderful* are frequently remarked upon in our note-books as beautiful in form and colour, and usually attaining to a considerable size. We have dismissed *Dancer's Pink Cape* as "not wanted," but, as it makes extremely pretty heads, it may be turned to account for exhibition.

S. H.

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LARGE DATE PALM.—The *Revue Horticole* mentions that a Date Palm, which recently died in the establishment of M. Huber and Co., of Hyères, France, has been cut down, and that its trunk measured 14 metres from the ground to the head, 3.70 in girth at the base, 1.95 in the middle of the trunk, and 1.50 at the summit. The tree was sixty-five years old, and one of the largest in France.

February.

## THE TRIAL OF GARDEN PEAS AT CHISWICK IN 1872.



THE great trial of garden peas, comprising 113 varieties, which was instituted last year in the Gardens of the Royal Horticultural Society, at Chiswick, proved unusually successful; and we now propose offering a few remarks on those varieties which appear to be most worthy of general cultivation. We need hardly say that nothing like the number of varieties tested at Chiswick is required even in the largest-sized garden; but in gardens of a size sufficient to admit of a succession of peas being maintained throughout the season, several varieties must of necessity be cultivated. The peas which form the Chiswick trial, and our own trials in the experimental garden at Stoke Newington, are included in the subjoined selection, which, it is desirable to state, contains the names of a few varieties which are new, and now in course of distribution for the first time, at a comparatively high price, and also some which are not yet in commerce. The new varieties mentioned are all of considerable excellence, quite distinct, and superior to others of the same class. They are arranged in seven groups, according to their respective characters. The seed of all the varieties was sown February 23, and the date given at the end of the description indicates the period of their being fit for use. Such as are not in commerce are distinguished by an asterisk.

No. 1.—FRAME PEAS.—Ripe seed white, almost round, small, smooth, and occasionally pitted; foliage pale green, not blotched.

*Dillistone's Early* (3 feet).—Carter's First Crop and Sutton's Ringleader represent true stocks of this pea, which is the earliest in cultivation. June 9.

*Sangster's No. 1* (4 feet).—This is three days later than the preceding, of a similar character, but more productive. June 12.

*Early Ringwood* (3 feet).—A productive second early pea, of good quality. June 17.

*Bishop's Long-podded Dwarf* (2½ feet).—A heavy-cropping second early pea, of good quality. June 24.

*Nabob*,\* *Laxton's* (20 inches).—A dwarf productive variety, requiring no stakes. This is the most handsome and largest pea of its class, and exceedingly valuable. June 24. New.

No. 2.—MARROW PEAS.—Ripe seed white, large, smooth, uneven, compressed, irregular; skin thick; foliage blotched.

*Paradise Marrow* (5 to 6 feet).—An early and productive marrow pea of great excellence; and where peas of this class are preferred should be grown to succeed Sangster's No. 1. June 24.

*Princess Royal* (4 feet).—A heavy-cropping pea, of good quality, producing large handsome pods. June 25.

No. 3.—GREEN MARROWS.—Ripe seed of a mixed white and olive colour, either small, round, and pitted, or large, irregular, and uneven; foliage dark green, and blotched; pods dark bluish green and glaucous.

*William the First* (4½ feet to 5 feet).—A desirable and productive

variety, producing long, handsome, curved, and well-filled pods. This is the earliest green marrow pea, being fit for use June 14, and therefore only two days later than Sangster's No. 1. It was awarded a first-class certificate.

*Unique*\* (15 inches).—A valuable dwarf variety, in the way of Tom Thumb and Little Gem. The pods are large and well filled, and the peas are of the most excellent flavour and colour. A valuable addition to the list of varieties which require no stakes; and it was awarded a first-class certificate. June 19. New.

*Prizetaker* ( $4\frac{1}{2}$  feet).—A productive and desirable variety. The pods are large and well filled, and the colour and flavour of the peas are exceedingly good. One of the best of the class in cultivation. June 23.

*Laxton's Supreme* (5 to 8 feet).—A very large and handsome podded pea, quite second-rate in flavour, and not desirable, excepting for exhibition purposes.

NO. 4.—PRUSSIAN PEAS.—Ripe seed, small, almost round and smooth; skin blue; foliage dark green, and blotched.

*Harbinger*\* ( $2\frac{1}{2}$  to 3 feet).—Similar in habit to Dillistone's, and fairly productive; the pods are rather small, but exceedingly well filled with peas, which when cooked are of fine flavour and colour. This is the earliest pea in cultivation, coming into use three days before Dillistone's Early, and six days before Sangster's No. 1. It was awarded a first-class certificate for its earliness. June 6. New.

*Easte's Kentish Invieta* (3 feet).—This is the same in every respect as the preceding, excepting that it is seven days later. It can be heartily recommended for its good qualities as an early pea, especially as it is now procurable at the ordinary price.

*Blue Peter* (18 inches).—This may be considered a fine productive and large podded form of Tom Thumb, with round blue seed. It is a valuable addition to the list of peas requiring no sticks. A first-class certificate has been awarded to it. June 18. New.

*Filbasket*\* (3 feet).—Robust, vigorous, and productive. The pods are very long, curved, well filled, and handsome, and the peas are of a fine green colour. It was awarded a first-class certificate for the prolific character of the plant and handsome appearance of the pods. June 26. New.

*Flack's Imperial* (3 feet).—A well known, useful, and productive pea, quite superseding Bedman's Imperial, June 25.

*Supplanter*\* (3 feet).—A very robust and productive pea; the pods are large and well filled with large peas of a deep green colour. A certificate was conferred upon it for its handsome appearance and prolific character. July 1. New.

NO. 5.—WRINKLED WHITE MARROWS.—Ripe seed, white, compressed, and wrinkled. Foliage most frequently dark green and much blotched, but occasionally light green, or not at all blotched.

*Nutting's No. 1.* (2 to  $2\frac{1}{2}$  feet).—Vigorous and branching in growth, very productive, the pods being borne almost close to the ground; peas rather large and very sweet and excellent in flavour. June 18.

*Wonderful* (3 feet).—A first-class variety, with large well-filled pods; the peas are large, pale green, and most excellent in flavour; a desirable variety. June 26.

*McLean's Prolific* (3 feet).—This resembles the preceding in its general characters, but having larger pods. The latter are broad, slightly curved, and contain six or seven peas each, which are of most excellent flavour. June 28.

*British Queen* (6 feet).—A well-known pea of the most prolific character and finest flavour; in mild seasons it will continue in bearing until quite late in the autumn. It is known under a host of other names, and is undoubtedly one of the best late varieties. June 30.

*The Prince* (3 feet).—A capital variety, of a robust branching habit. The pods are about the same size as Veitch's Perfection, and it may be considered an exceedingly fine form of that pea, and when it can be obtained true is superior to it. Not unfrequently both varieties are supplied from the same bag. June 30.

*McLean's Premier* (3 feet).—An excellent pea, producing large and handsome pods, containing from six to seven large fine peas of fine colour and excellent flavour. It is rather earlier and less tender than Veitch's Perfection.

*James's Prolific* (3 feet).—Robust and branching, with long succulent stems, producing a profusion of very large, handsome, well-filled pods. The pods contain from six to eight peas of a pale green colour and rich sugary flavour. One of the finest peas that has been introduced for some years. It was raised by Mr. James, of Isleworth, and will undoubtedly be grown exclusively for main crops in many gardens as soon as it is plentiful enough. A first-class certificate was awarded it for its general good qualities. Sown March 1, it was fit for use July 14. New.

No. 6.—WRINKLED GREEN MARROWS.—Ripe seed, mixed white and olive. Foliage dark green, and blotched pods dark dull green; very glaucous.

*Dr. Hogg\** ( $3\frac{1}{2}$  feet).—This resembles Sangster's No. 1 in habit, and produces, rather freely, long and narrow well-filled pods. The peas are of a fine flavour, and bright green colour. It is the earliest green wrinkled marrow, being only four days later than Dillistone's Early. June 16. New.

*Ne Plus Ultra* (6 feet).—A first-class tall pea for late main crop, that can be highly recommended for productiveness and excellent quality. June 29.

*Omega* (3 feet).—A fine, erect, robust-growing variety, of the most productive character; the pods are large, nearly straight, and very closely filled. The peas average eight in a pod, are very large, of a deep green colour, and most excellent flavour. It stands the dry weather well, and is quite first-rate. It was awarded a first-class certificate. June 30. New.

No. 7.—WRINKLED BLUE MARROWS.—Ripe seed, blue and wrinkled. Foliage dark green and much blotched.

*Alpha* (3 feet).—A very early and excellent wrinkled marrow, coming into use two days later than Sangster's No. 1. June 14.

*Little Gem* (15 inches).—One of the very best of the dwarf varieties, requiring no stakes. It is moderately productive, and of excellent quality. June 16.

*Popular* ( $6\frac{1}{2}$  feet).—Excellent tall-growing pea for general crops.



*Champion of England* (5 feet).—A tall-growing variety, well known for its productiveness and excellent quality. The best stock of this pea is sold under the name of "Huntingdonian."

*G. F. Wilson* (4 feet).—This resembles Veitch's Perfection in appearance, and produces very large pods of a light green colour. The peas are large, closely packed together, and of the finest colour and flavour. Awarded a first-class certificate. June 27. New.

*Tall Green Mammoth* (7 feet).—A good variety, but too tall for small gardens. July 1.

*Veitch's Perfection* (3 feet).—This is undoubtedly a good pea, but is not required where the Prince is grown.

### THE CLEMATIS AS A BEDDING PLANT.



HAVE no doubt the Clematis is known to every one of the readers of the FLORAL WORLD as one of our most showy and hardiest of out-door creepers, and yet I expect very few have seen them grown in their most uncommon but handsomest style, and that is as bedding plants.

For this purpose, I can confidently say, there are no plants that will remain out-of-doors all the year round to equal them (or, indeed, even put out in summer). We have none for mass bedding of which the blooms can come near in size to the Clematis. I had been told what an excellent plant it was for this purpose, but had no idea of the effect until I saw it myself this summer, and think for large beds on lawns nothing can be handsomer.

The most or indeed, I think, nearly all the beds I saw were of one colour, and this was the only fault I could find with them, as in the very large beds I thought the masses of blue and purple looked too heavy, but in the small circles I should most decidedly prefer each bed to be filled with one distinct colour. I shall fill some large beds of mixed colours myself this season, that I have been in the habit of filling with verbenas. Where there is a large amount of summer bedding done, such plants as the above are quite a boon, as they remain out all the winter, and at this season every one knows how valuable every inch of spare room under glass is, and of course it leaves one the room free that would otherwise be occupied with plants for summer bedding. For those who have no glass they would be quite as acceptable, also for growing wild on rock-work, covering walls, or dead stumps of trees in the shrubbery, or as a creeper of any kind they are very handsome; but, above all, I prefer them when employed as bedding plants, pegged down. I am sure for a basket-shaped bed that one sometimes sees in gardens the wire-work covered with one colour and the bed filled with another, would look very effective. For those who do spring bedding, they can plant their bulbs through them, as the Clematis will not in any way interfere with them. One of the best for bedding is *Clematis Jackmanni*, which bears dark bluish purple flowers.

Upper Norwood.

A. H.

## GARDEN GUIDE FOR FEBRUARY.

**KITCHEN GARDEN.**—Asparagus and sea-kale must be started at once for supply next month. Take up four-year-old plants of asparagus, and plant in a bed over moderate dung-heat. Let the grass grow till there is a plump green top before cutting. Sow the main crops of peas and beans at the first favourable opportunity; a few of the earliest sorts, on well-drained slopes, facing the south, to come on quick; or, if a small successional supply is required, get in a few rows of the earliest sorts of each, and sow again as soon as the first come up, and so on, to the end of March. Sow spinach between the rows of peas. A little of everything in the edible way may be got in now in good positions—small sowings of cabbage, Brussels sprouts, carrots, turnips, parsley, radishes and lettuce, but the main sowings of most things should be deferred. Get one pan of celery forward in heat, and some lettuces for planting out. Where ground in good heart was ridged up over winter for potatoes, the whole may be planted now. Trench them in, in preference to using the dibber; but if the weather should be wet, or the ground frozen, get in a few early sorts only, and also some early kidneys in frames for the first supply. Prepare, by trenching and manuring, the plots intended for seakale and asparagus next month. Turn out potted cauliflower-plants on well-manured stations, four plants under each hand-light, choosing a very sheltered position. Edgings and plantations of strawberries may now be made, and old beds must be dressed. Prune and tie raspberries, leaving but three or four shortened canes to each stool. Heap half-rotten dung over the old stools of rhubarb, to promote early production. Potatoes may be sprouted by laying the tubers on a flue or on the surface of a pit planted with asparagus. A gentle heat and full light will prepare them for planting in frames for an early crop.

**FLOWER GARDEN.**—Auriculas should have one good soaking with water soon, and a fair state of weather must be taken advantage of for it. If it continues frosty, keep them nearly dry, but they are in haste to move, and must be encouraged with caution. The old directions for sowing hardy annuals and perennials in February do not altogether suit our seasons of late, and it is seldom advisable to sow any before March, except in frames and hot-beds; but, with artificial heat, sowings of most things may now be made, both for blooming in pots in the greenhouse and conservatory, and for turning out into beds and borders. Do not forget *Phlox Drummondii*, *Delphinium formosum*, cinerarias, Chinese primroses, stocks, asters, auriculas and balsams, for all of which a moderate heat is sufficient. Most perennials, and even chrysanthemums and dahlias, sown now, and hardened off as soon as pricked out, will flower the present season. Top-dress auriculas, polyanthuses and pinks, if not done last month, and make up dung-beds for propagating, as the demand for bedding stock is frequently greater than the room devoted to wintering them can supply. Ground roots of dahlias should now be starting for cuttings. The losses have been very numerous in

some places, and there will be a demand for good sorts in April. Leave pot-roots alone till the end of the month, unless they are sorts that are much required for stock. Soft-wooded and free-growing plants may be multiplied rapidly with the help of a frame. Fill up to within twelve inches of the glass with dung that has been previously turned, to remove its rankness, and upon it spread four inches of dry sandy soil, and put in the cuttings as fast as the plants supply them. Look over the stock of seeds, and determine what will be required for this season's sowing, and, in good time, fix upon the style and method of bedding out you will pursue, so as to raise stock for the purpose, for the season of propagating is now at hand, and for the next two or three months, the chief work of the whole ensuing season will have to be got through.

CONSERVATORY AND GREENHOUSE.—Azaleas must be kept back, unless there is a large stock, or they will be all in bloom at once, instead of giving a charming succession. Those already in the forcing-house must have plenty of water, and if well loaded with bloom, they should have weak guano water. The stock here will now be starting into spring growth, and though air must be given as much as possible, cold draughts and frosts must be guarded against, as, during this month, most greenhouse plants are more susceptible of cold than at any other period of the year. Shift such things as require it; see to the drainage of plants well established; give water pretty freely to such as are making free growth; azaleas and camellias must have plenty. Camellias are now pushing fast, and must be bloomed in a dry air, and be shaded from mid-day sun. Weak guano-water will help them, but give two waterings with plain water to every one of manure. Camellias done blooming, should be put into a temperature averaging sixty-five degs., with a moist atmosphere and partial shade, by means of tiffany, or canvas, over the glass, to promote the growth of new wood. Epacris, correas, lechenaultias, polygalas, etc., should have a little extra warmth, and be brought into free growth for flowering; the latter like a little old mortar mixed with the peat in potting them. Houses devoted to collections of plants should now be carefully looked over, as some things may be doing badly, owing to too low a temperature, while others may require it to be reduced. A free increase of fire-heat for a few hours at mid-day, sinking to the old point at night, is sometimes advisable, to keep mixed collections healthy; and in the arrangement of the stock, orchids and New Holland plants, and exotic bulbs, should be placed at the warmest end; pelargoniums, calceolarias, and cinerarias, intermediate; and ericas at the coolest end, with a free circulation of air. Put *Deutzia scabra*, *Weigelia rosea*, and *Forsythia viridissima*, into moderate heat to bloom well, and they will make a beautiful display for some time to come. Look out sharp for green fly and red spider, and fumigate with sulphur and tobacco as may be necessary. Fuchsias that have started should be laid on their sides and syringed occasionally. Plants coming into bloom must have weak liquid manure once a week. Bedding fuchsias start in heat; and get ready a compost of turfy loam, one-half; old hot-bed dung, one-fourth; leaf-mould, one-fourth; and at the

first potting of newly-struck cuttings, plenty of silver-sand. Geraniums have been cut up very much by the damp in places where the bedding-stuff is wintered in pits. When killed down to the pot, the roots will generally be found alive, and if the fleshy parts of the roots are cut into two-inch lengths, and dibbled into silver-sand with the top of each cutting above the sand, good plants may be obtained, but they will bloom late. Hyacinths must have frequent doses of liquid manure, and there is nothing better than diluted house-sewage or soot-water. They like bottom-heat, and must have plenty of light to give them their true colours, but to be shaded when in bloom. Pelargoniums must be got into shape at once, and with as few sticks as possible. When they want water, give them enough, but let them be rather dry for a while, rather than water during severe weather, because with water they will also require air. Average temperature this month—forty-five degs. at night, fifty to fifty-five degs. by day, with a rise of five degs. more with sun-heat.

STOVE.—Pines should be kept at a moderate bottom-heat, or many may fruit prematurely; from eighty-five to ninety degs. will be quite sufficient; anything beyond ninety is a positive injury to them. In houses where vines are in leaf, air must be given at every opportunity, but with great caution. Beware of undue heat at night; it is better to let the temperature sink a few degrees on sharp nights than to drive the vines on in an unhealthy air, which is a frequent cause of failure in setting and ripening. Keep evaporating pans at work where syringing would be inadvisable to keep down spider.

FORCING PIT.—In this structure keep the thermometer at eighty degs. for bottom-heat, and on sunny days increase the atmospheric heat to the same point for an hour or two, to give an opportunity for syringing.

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THE LEAFING OF THE OAK AND THE ASH.—The old proverb which deduces an augury of the weather from the relative position in order of time of these trees in leafing has been brought into prominence again. The Rev. F. O. Morris, writing on the weather of last year, makes the following remarks:—"This is the last day of the year 1872, and the excessive rainfall we have had for the greater part of the period has certainly been a proof of the truth of the old adage:—

‘The oak before the ash, a summer of splash;  
The ash before the oak, a summer of smoke.’

I believe, however, that the old saw is sometimes read backwards, and I do not myself place much faith in it. I incline to think that the fact of one tree or the other being out in leaf first is a sign of the weather that has been rather than that which is to be. But be that as it may, the oak, as I duly noted at the time, was in full leaf this spring long before the ash, and far more so than it usually is even when it has the start in the race between the two. Not only so, but when the ash-trees had begun ‘*sero sed serio*,’ a full month after the oaks, to come into leaf, they were cut off by the extraordinarily severe frost of May 19 and 20, and did not for months come into their proper full foliage, if ever they did so at all this year. The walnut-trees, too, as well as others, were withered away in like manner, and had only come into leaf again by the end of June.”



## THE CULTIVATION OF THE CLEMATIS FOR WALLS AND TRELLISES.

(From "THE CLEMATIS AS A GARDEN FLOWER.")



As a wall plant, the Clematis ranks high amongst those which may be selected on account of their decorative capabilities. In this capacity moreover, it affords a choice of subjects adapted respectively for spring, for summer, and for autumn-flowering, the spring-flowering sorts belonging to the montana, the florida, and the patens types, while the most important of the summer and autumn-flowering ones are those of the lanuginosa, Vitiella, and Jackmanni groups.

When grown on walls, whether covered or exposed, the plants of the early-flowering section are not liable to suffer injury from frost, being perfectly hardy, and flourishing even in exposed situations. The chief risk they incur, and which is but little, is that arising from the incidence of the morning sun upon them when a sharp late spring frost may have caught the expanded flowers. In any moderately-sheltered position, however, this risk is but slight indeed, and the plants will grow freely, and flower satisfactorily, coming into blossom about the middle or end of May, and continuing to flower more or less abundantly, according to the situation they occupy, up to the end of June or beginning of July. The general features of their treatment have been already described when treating of sections 2 and 3, which include the most showy of the early-blooming sorts, and may be summed up thus:—Deep rich light loamy soil; a liberal supply of manure at least annually; the free development and perfect maturation of the summer shoots; and the retaining these at as great length as possible when pruning in winter.

In very sheltered situations, some of the varieties of the montana group, notably *C. calycina*, may be had still earlier than the foregoing; while as a May bloomer, vigorous in growth, hardy in constitution, and most prolific of flowers, *C. montana*—with its variety—is strongly to be recommended as a distinct type of the genus.

The summer and autumnal-flowering groups are gorgeous wall plants, and include not only the nobler forms bred from *C. lanuginosa*, but the floriferous, hybridized, and selected descendants of *C. vitiella*. They commence to put forth their inflorescence about July, and continue on till October or November, those of the former alliance in moderate abundance and at intervals, those of the latter in continuous profusion. The lanuginosa breed is, however, specially effective when thus grown, on account of the immense size to which the blossoms of many of the varieties attain, and which, facing outwards from a background of growth, are then displayed to the greatest possible advantage. They require in this position the most liberal feeding, and moderate pruning, the summer growths being carefully trained in to secure the successional flowers they produce.

The Vitiella and Jackmanni varieties attract rather by the profusion than by the individual size of their flowers. These plants, while fed to the utmost in order to meet the excessive demand upon their powers, should be pruned hard back every autumn, unless a considerable space is intended to be covered, and the young shoots should be trained up to their full extent in the early part of the summer, until flowers begin to appear, when, as all the lateral growths develop flowers, it may be better to let them fall in graceful wreaths of pendant spray.

In illustration of the capabilities of the varieties of this latter type as decorative objects, we may quote the following interesting description of a specimen of *C. Jackmanni*, growing in the garden of Lord Polwarth, Mertoun House, St. Boswell's, in Berwickshire. Mertoun House is in close proximity to the Tweed, within three miles of the St. Boswell's station, on the Waverley route to, and about forty miles from, Edinburgh. Mr. Fowler, Lord Polwarth's gardener, in a letter dated March, 1872, writes as follows;—

"The plant in question was planted five years ago, from a 4-inch pot, against a wall with an eastern exposure. As the garden walk passes close by the wall, and, consequently, over the roots, I had the ground well prepared at the outset. The natural soil being light, upon a gravelly bottom, I added a mixture of one-half heavy loam, and one-half natural soil, with a considerable quantity of well-rotted manure, incorporating them well together, and beating down the whole

before planting, to make the walk solid. In order to protect the tiny stem of the plant from injury, I had two short boards nailed together in the form of a V, and placed against the wall. The plant made several shoots, which were carefully nailed in as they grew. The only attention it has required since has been the pruning-off of the old flower-stalks and leaf-stems, and the equal distribution of the branches. I have it now trained over a surface about fifteen feet square, and it is capable of covering a much larger space, had it been at my disposal. I have never pruned off a single living bud, but as they burst into growth, have had them neatly tied in. Thus treated, they flower in wonderful profusion from early summer until late in autumn. At the beginning of last September, the flowers on this plant were counted, and the number then open was found to be 1275, the grand effect of which can scarcely be imagined. The plant well deserves the popularity which it has gained, being perfectly hardy, easily managed, and unrivalled in colour and flowering properties by any climbing plant I know."

Mr. Fowler very judiciously advises that in planting the now numerous and dissimilar varieties of Clematis for the ornamentation of wall surfaces, the operation should be performed with the view of allowing each plant, ultimately, to occupy a considerable space, as in this way only can its beauties be displayed to the fullest advantage. It may, moreover, be noticed as a peculiarity of Mr. Fowler's treatment, that he does not prune back his plants, nor, indeed, cut away any living buds, but trains in all the young shoots which are produced. That the results of this mode of treatment are satisfactory, the foregoing description of his specimen of *C. Jackmanni* abundantly testifies.



## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

### CHOICE VEGETABLES FOR ALL PURPOSES.

In giving the undermentioned selection of vegetables, we cannot too strongly urge upon our readers the importance of giving their orders for seeds as early as it is possible for them to do so. Usually the seeds are not ordered until March, when a portion ought to have been sown, and not unfrequently some of the

earliest crops are mixed altogether, through not having the seeds at hand when the ground is in a fit condition for their reception. We would suggest that all seed orders should be placed in the hands of the seedsmen some time during the month of February.

### A SELECTION OF KITCHEN-GARDEN SEEDS AND ROOTS.

**ASPARAGUS.**—*Grayson's Giant* and *Conover's Colossal*.

**BROAD BEANS.**—*Early Mazagan* for the first crop; *Beck's Green Gem* and *Royal Dwarf Cluster* for growing in frames; *Monarch Long-pod* for productiveness; *Taylor's Broad and Green Windsor* for finest quality; *Johnson's Wonderful Long-pod* for exhibition and general purposes.

**BET.**—*Nutting's Dwarf Red*, *Henderson's Pine-apple Short-top*, *Dewar's Short-top Red*. For shallow soils, *Egyptian Turnip-rooted*. For the flower-garden, *Osborn's Dark*.

**BRUSSELS SPROUTS.**—Imported, *Serymger's Giant*, *Mein's Victoria*.

**BORECOLE.**—*Common Green Scotch*, very productive; *Mein's Extra Curled* is extremely handsome; *Cottagers' Kale*, very hardy and productive; *Chou de Milan*, *Albert Sprouts*, very useful tall sorts.

**BROCCOLI.**—For a succession, *Grainger's Autumn White*, *Hammond's White Cape*, *Sutton's Superb*, *Snow's Winter White*, *Early Penzance*, *Cooling's Matchless*, *Beck's Dwarf White*, *Hammond's Imperial Hardy*, *Cattell's Eclipse*, *Carter's Late Summer*, *Purple Sprouting*.

**CAULIFLOWER.**—*London White, Veitch's Autumn Giant*, very large, *Lenormand's*.

**CARROT.**—For forcing in frames, *French Short Horn*; for early sowing on slopes, *Common Scarlet Short Horn*; for main crop, *Survey* and *Altringham*; for shallow soils, *James's Intermediate*.

**CABBAGE.**—*Little Pixie, Atkins's Matchless*, and *Rosette Colewort* are the best to sow at all seasons, and to cut any size; the best for main crops are, *Enfield Market, Nonpareil, Cattell's Reliance*, and *Wheeler's Imperial*.

**CELERY.**—*Williams's Matchless Red*, and *Turner's Incomparable White*; for fine quality and general crops, *Manchester Red* and *Cole's Crystal White* for large crops.

**CUCUMBER.**—The best for winter and early spring use are *Rollisson's Telegraph* and *Masters' Prolific*; for summer crops and general usefulness, *Blue Gown, Cuthill's Black Spine*, and *Hamilton's Market Favourite*; for exhibition, *Kirklees' Hall Defiance, Hamilton's Invincible, Blue Gown, Marquis of Lorne*, and *Abbey's Garden Prize*.

**CAPSICUM.**—*Long Red, Long Yellow*, and *Long Red Chili* are the most useful.

**ENDIVE.**—*Green Curled, Fraser's Improved, Broad-leaved Batavian*, and *New Moss-curled*.

**KIDNEY BEANS.**—For pot-culture, *Sir Joseph Paxton, Fulmer's Forcing*, and *Newington Wonder*; for main crop, *Newington Wonder, Negro*, and *Red Speckled*. The best runners are common *Scarlet* and *Carter's Champion*. The last is very fine in quality, large in size, and productive.

**LEEK.**—*Musselburg, Ayton Castle, Giant*.

**LETTUCE.**—For autumn sowing to cut in winter and spring, *Hammersmith* and *Brown Cos*; for summer use, *Alexandra Cos, Tom Thumb's Cabbage, All the Year Round Cabbage, Bath Cos, Sugar-loaf Cos, Paris White Cos*.

**MELON.**—For early forcing, *Sutton's Tom Thumb* and *Turner's Scarlet Gem*; for frame and house culture—green flesh, *The Sultan, Trentham Hybrid, Colston Bassett, Burghley Park*; scarlet flesh, *Scarlet Gem, Malvern Hall*.

**ONION.**—For frames and warm slopes, also for pickling, *Early Nocera, Paris Silver Skin*; main crop for storing, *Improved Reading, Deptford, James's Keeping, Bedfordshire Champion*; for exhibition, *White Spanish, Blood Red, Trebons, Giant Madeira, Giant Rocca*; and for autumn sowing, *Red and White Tripoli, Globe Tripoli*.

**PARSNIPS.**—*Hollow Crown, Student*.

**PEAS.**—First and second Early, *Sutton's Ringleader, Tuber's Perfection, Kentish Invicta, Little Gem, Alpha, Advancer* (rather tender in constitution, but invaluable), *Nelson's Vanguard, Paradise Marrow*; main crop and long gathering, *Fortyfold, McLean's Wonderful, Veitch's Perfection, Quality, Quantity, Ne Plus Ultra, British Queen, The Prince*; for pot culture, *Little Gem, Tom Thumb*.

**PARSLEY.**—*Anybody's Treble-curled* or *Splendid-curled*.

**POTATOES.**—*Veitch's Improved Ashleaf, Myatt's Ashleaf Champion, Haigh's Kidney, Dalmahoy, Model Baron's Perfection, Flour-ball, Milky White, Wellington, Paterson's Victoria, Rintoul's Early White Don, Gryffe Castle Seedling, Fluke, Sutton's Berkshire Kidney, Walker's Regent, Almond's Yorkshire Hero, Wood's Scarlet Prolific*.

**RADISH.**—For frames, *Turnip* (red and white), *Wood's Early Frame*; for general use, *Beck's Scarlet Short Top, Scarlet Olive-shaped, White Olive-shaped*.

**RHUBARB.**—*Daneer's Early Scarlet, Myatt's Victoria, Mitchell's Royal Albert, Martin's St. Johnston's*.

**SPINACH.**—All the sorts in cultivation are good, but the best are *Round-seeded* for sowing in spring, and *Prickly-seeded*, for sowing in summer and autumn. *Spinach Beet* is very productive, and lasts the whole season. *New Zealand Spinach* is a fine vegetable for hot dry soils.

**TOMATOES.**—*Large Red, Large Yellow, Earley's Defiance, General Grant, Orange-field, Red Cherry*.

**TURNIP.**—To sow in spring, *Early White Strap-leaved, Short-Top Six-weeks, Polly Nonsuch*; to sow in summer, *American Stone, Beck's Golden Stone*, and *White Dutch*; to sow in autumn, *Jersey Navet, Green Top Six-weeks, Chirk Castle*.

**VEGETABLE MARROW.**—*Hibberd's Prolific, Large Cream, Large White*.



## HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY, January 15.—At the meeting on the above-mentioned date, Orchids were contributed in large numbers, and, as they were backed up with miscellaneous flowering and ornamental-leaved plants, the council-room presented a remarkably bright and attractive appearance, considering the season of the year.

THE ONE THOUSANDTH NUMBER OF THE GARDENERS' MAGAZINE, published on the 28th of December last, was celebrated by a sumptuous dinner at the Albion, Aldersgate Street, under the presidency of Mr. W. H. Collingridge; the Editor, Mr. Shirley Hibberd, being the principal guest. Amongst the company, which numbered nearly a hundred persons, were many of the most eminent horticulturists, botanists, landscape gardeners, and florists of the present day; and a right jovial evening was enjoyed by all. In the course of the evening, on behalf of the proprietors, Messrs. H. and L. Collingridge, the chairman presented to Mr. Hibberd a picture of Roses by Larpent Roberts, expressing a hope that the author of the "Rose Book" would enjoy such a faithful portraiture of the flower to which, as a practical cultivator and public teacher, he had given so much attention. In the course of the evening, it was stated that the "Gardeners' Magazine" is the oldest existing of horticultural papers.

IMPORTATION OF POTATOES.—Some curious statistics respecting the importation of potatoes are given in an official document just issued. In the month of December, 1870, the value of such importation was only £446; in the same month of the succeeding year the amount was £33,770; and in the month of December last it reached £343,367. In the year ended the 31st of December last the amount was £1,654,240, against £225,732 in the preceding year.

THE BEDDING SYSTEM at Enville Hall is undergoing a tremendous reduction, the whole of the beautiful panel garden formed and planted by Mr. Bennett being now in process of turfing over.

MESSRS. VEITCH AND SONS' SPECIAL PRIZES FOR FRUIT.—Messrs. Veitch and Sons, King's Road, Chelsea, offer a series of prizes for fruits to be exhibited in the forthcoming season, the total of the prizes amounting to £90. The provisional schedule contains three prizes of £25, £15, and £10 respectively for collections of fruit, two of £10 for six bunches of grapes, one of like amount for three pines, and two of £5 for peaches and nectarines. The scheme is liberal, and calculated to be useful. The three prizes of £25, £15, and £10 are offered for collections of both indoor and outdoor fruits, and any number of dishes may be shown.

MR. BULL'S PRIZES FOR NEW PLANTS.—Mr. William Bull, of King's Road, Chelsea, has offered a series of prizes for new plants of his own introduction, in order to encourage the cultivation of specimens of those which are adapted for exhibition purposes, and to counterbalance the fact that his accommodation for plant-growing is wholly occupied in preparing novelties for distribution. The prizes are to be given through the agency of the Royal Horticultural Society, and will amount, in silver cups, to the value of £300. The scheme extends over three years, and comprises awards of £100 each year for twelve new plants, according to the following arrangement: the value of £50 at the principal show, to be held at Kensington in June (this season on the 4th, 5th, and 6th of that month), and the value of £50 at the Society's provincial show, which takes place this year at Bath, on June 24—28.

THE PRINCE OF WALES'S GARDENER.—We have been informed that Mr. Charles Penny, now gardener to H. H. Gibbs, Esq., of Aldenham Park, has received the appointment of gardener to H. R. H. the Prince of Wales, at Sandringham, in succession to Mr. Carmichael, who, in consequence of changes in the establishment, has been relieved of his duties. Mr. Penny is well known as an energetic gardener and a good orchid grower.

THE ROYAL HORTICULTURAL SOCIETY'S JOURNAL.—A number of the "Journal of the Royal Horticultural Society" has just been published, and may be had by Fellows and Members of the several committees, on application to the Assistant Secretary of the Society, and by persons not connected with the Society, on pay-



ment of 2s., or 2s. 2½d. by post. It contains full reports of the several trials of flowers and vegetables instituted at Chiswick last year.

ROSE CONGRESS IN FRANCE.—The Lyons Horticultural Club has decided on forming a Congress of Rose Growers, in order to discuss the question of the nomenclature of roses, and to abolish, as far as possible, useless synonyms. The secretary is M. Jean Sisley, 1, Rue Saint Maurice, Monplaisir, Lyons (Rhône), France.

PETER LAWSON AND SONS, SEEDSMEN, LONDON AND EDINBURGH.—The nursery and seed business of Peter Lawson and Sons has been converted into a joint-stock company, with a capital of £75,000, in shares of £15 each, under the name of the Lawson Seed and Nursery Company (Limited). This business has been carried on for over a century, the originator being the late Mr. Peter Lawson, who died in 1820 at a hale old age; subsequently Mr. Charles Lawson, late Lord Provost of Edinburgh, has been at the head of the firm. Nearly all the available shares were taken up within a few days of the intimation of the proposed change being made, and some of the *employés* of the old firm hold shares to a considerable amount, and will be associated with the general manager in carrying on the business. Mr. David Syme is the general manager of the company; and Mr. David Mitchell has the management of the nurseries.

## TO CORRESPONDENTS.

*Amateur*.—The occurrence is very unusual, and it is impossible to say what the cause of the failure really was without having seen the vines.

*M. A. D.*—The first fern is *Nephrodium molle corymbiferum*. No. 3 is *Adiantum trapeziforme*.

LILYUMS AND GLADIOLI.—*Subscriber*.—Full instructions on the Cultivation of Lilyums, will be found in the FLORAL WORLD for March, 1869, and in the issue for October, 1871.

ROSE BORDER.—I have a long strip of garden under a wall facing E.S.E., and about six or eight feet wide. Would it be of any use to plant it entirely with roses—principally on their own roots—not pegged down? I have succeeded so well with my rose-cuttings. Those two articles which you gave last year on striking roses must have made many a lady amateur quite happy. I can speak for one, as I have often tried to raise roses from cuttings, and never really succeeded. Yours very truly and obliged.—*M. A. D.* [The roses would do very well in the border, provided it is properly prepared by deep digging, and, if practicable, liberal manuring.]

CARPET BEDDING.—In the autumn, a gentleman looking over my garden, bedded as is usual hereabouts with zonal and other geraniums (pelargoniums should I say?), *calceolarias*, *lobelias*, etc., remarked on the blaze of scarlet and yellow which such flowers exhibit, and told me of some gardens he had lately seen where our routine system was broken through, and the beds filled with plants of the house-leek family from Mexico, from which a much greater variety of colour, and a softer and much more pleasing effect was obtained. I infer the plants he meant were *Echeverias*, or allied species, and I should be glad, as I live in a remote country place, and have no opportunity of seeing new garden methods, if you would inform me, through the medium of the FLORAL WORLD, if such plants are used for bedding purposes; if the effect is such as he describes; if the plants in question are readily propagated, and kept with little difficulty through the winter; and if they would be likely to stand the climate of this place, which is in the West Riding of the County of York, and at an elevation of some 300 feet above the level of the sea. If your answer to these queries should be in the affirmative, probably you might write, or induce one of your talented correspondents to write, an article on the subject in an early number of the FLORAL WORLD, giving full instructions as to propagating, treatment during the winter, and form of beds.—*T. J. C., Ilkley*. [Our correspondent appears to have overlooked the excellent articles on carpet bedding which have already appeared in the pages of the FLORAL WORLD. The dates upon which the most important of these communications appeared are March, 1871, and May, 1871. The numbers may be had through the post. The *Alternantheras* will, probably, be too tender so far north, and at such a high elevation.

**ORCHIDS IN VINERY.**—*Amateur.*—The following are twelve splendid orchids that do well in a cool house:—*Lycaste Skinneri*, *Barkeria Skinneri*, *Dendrobium speciosum*, *Disa grandiflora*, *Oncidium holychrysum*, *Odontoglossum Alexandræ*, *O. luteo-purpureum*, *O. grande*, *O. gloriosum*, *O. Insleayi*, *Phaius Wallichii*, *Epidendrum vitellinum*. Keep the Cypripedium rather dry after it finishes its growth until it starts again.

**CUTTING FLOWERS FOR VASES.**—*A Subscriber, Devonshire.*—You will find the following valuable:—Ten-weeks and other Stocks, Asters, Larkspurs, both annual and perennial, *Phlox Drummondii*, and those belonging to the herbaceous section; all the zonal Geraniums, *Calceolaria amplexicaulis*, and others, Lupines, Sweet-peas, white and scarlet; Pinks, Cloves, Hunt's Sweet Williams. A few of the most showy Gladioli mixed amongst the other plants would have a fine effect, and furnish spikes for cutting. A pretty effect will be produced with the above if judiciously mixed.

**PLANTING GLOBE ARTICHOKEs.**—*B. S.*—We presume you mean the Globe Artichoke, the flower-buds of which are sent to table. If you order Globe Artichokes, you ought to have no difficulty in obtaining astock; for we find them entered in the catalogues of all the principal houses at from six to nine shillings per dozen. Plant in March or April, let the ground be well manured and trenched, and if the weather sets in rather dry after planting, spread a little short litter over the roots to keep them cool and moist.

**GARRYA ELLIPTICA.**—*Miss W., Devon.*—The beautiful shrub, of which you send cuttings (the name of which we give above), is a native of North-west America. It is quite hardy, evergreen, thrives in any good loam or peat soil, and produces elegant drooping, catkin-like flowers in early spring. Though so beautiful, it is scarce, not only in private gardens but in nurseries.

**HOW TO FORM A CROQUET GROUND.**—*Young Gardener.*—A croquet ground is simply a level lawn of the size most suitable for playing the game, therefore the ground should be perfectly level, and have a nice close bottom, exactly the same as an ordinary lawn. The ground must be well broken up and made level, and then laid down with turf or grass-seeds. This is entirely a question of expense; but if sown down with seeds, the ground will not be fit to play upon this season; whereas the turf will, if begun at once, so that the roots can get established before the dry hot weather. The hoops are generally arranged according to the size of the ground. About half an acre will be a fair average size, and a good arrangement would be to have it eighty yards long by forty wide. You might have a hedge of privet, holly, or laurels, to form a boundary. But if you could spare the ground, you might have a border of evergreen and other shrubs, with a few flowers along the front. If the ground is to join and form part of the lawn, of course no boundary will be required, with the exception of a bank of shrubs on the farthest side. It would be well to have a summer-house near for the convenience of those not taking part in the game. If not too close to the dwelling-house, a rustic style will be preferable, and a shady spot should be selected for its erection, or a few trees planted round it.

**PROPAGATION OF RHODODENDRONS.**—*G. S.*—Rhododendrons can be increased by seed, layers, and grafts. Sow the first in April, in sandy peat. Grafting is best done in April and May, just as the sap is rising. Tongue or whip-grafting is the best, and the graft should be inserted low down. Seedlings of *R. ponticum* are employed for stocks. Layer in the autumn. Cut a tongue, just the same as in layering any other class of plants, and peg the layers securely down, and cover with soil.

**PLANTING BOX EDGINGS TO WALKS.**—*Young Beginner.*—Take up the whole of the box, strip it into small pieces, and replant. Each piece should have a little root, but slips without will do. Cut off the long wood from the bottom, if it is likely to make the row unlevel. In opening out the trench for replanting, let the side next the border be perfectly level and firm to lay the box against. The new edging can be then laid down in a workmanlike manner, without much difficulty, and properly fastened. It is no use to expect the box to do much good, if the soil is filled in loosely. The box can be taken up and replanted at once.





PRICKLY PINE (CHALICOPHYLLUM)



## BEAUTIFUL TREES FOR KIND CLIMATES.

*(With Coloured Plate of Pittosporum crassifolium.)*

READERS of horticultural papers need to be constantly guarded against the misuse of the term "hardy," as applied to various garden plants. We hear of "hardy" trees and shrubs that are really tender in the climate of London, while the large group of subjects vaguely described as "hardy greenhouse plants," comprise a number of beautiful trees and shrubs that need no aid of glass for their preservation, in certain favoured spots in the west of England and the south of Ireland. It is not often we think of these genial nooks, and perhaps they do not so much need our attention as districts that are more exposed to the frosts of winter and the treacherous east winds of the early spring. Those who have left bleak spots in the north to sojourn for a while at Worthing, the Isle of Wight, or some one of the many "seaside gardens" that adorn the coasts of Somerset and Devon, can better appreciate the advantages of a kind climate than those who were born and bred in one of those pleasant places. Probably the first deep impression made on the mind of a lover of plants, on a visit to Ventnor in the autumn, will be in some way connected with the possibilities of horticulture in the British Islands, for the climate, with all its faults, favours a wonderful variety of vegetation. The kind climates may soon be discovered without the aid of maps or thermometers, for those who are accustomed to observe the aspects of vegetation will soon be struck with the exuberant growth of many plants, that in districts but a few miles removed are necessarily regarded as tender, and accordingly are assisted with the protection of glass. We may look in vain for trees and shrubs at Brighton, for excepting the grounds of the Pavilion, it is a treeless place. But Worthing abounds with beautiful examples of trees, that London cultivators regard as "nearly hardy," or as proper greenhouse plants. Particularly noticeable are the myrtles, euonymus, arbutus, and garryas, which attain to a luxuriance of growth which surprises a London gardener. In Ventnor we see in the autumn huge veronicas bearing thousands of flower-spikes, and haunted all day long by the magnificent Red Admiral butterfly, with examples of Escallonias not less beautiful. Here, moreover, the pampas grass grows as it grows nowhere else in the British Islands, and one specimen, that stands beside a farmhouse on the Undercliff, near to the new Cottage Hospital, is worth a journey of a hundred miles to see it when it bears its silvery plumes in the splendour of its autumnal flowering.

Now, we must confess that we cannot offer any special advice on horticultural matters to the inhabitants of these various favoured spots, but we can ask them to help us with a little useful information. We want something in the nature of a list of plants commonly regarded as tender, but which endure the winters and attain to a fair degree of development in certain of the western and southern

localities. Readers of the FLORAL WORLD who enjoy the blessing of a kind climate, would confer on us a great favour if they would look round and make lists of plants they find thriving in open gardens, selecting such as are not usually met with in places less favourable to vegetation.

But some of our friends will ask us to name a few subjects, to serve as a guide to them, that they may take note of really interesting subjects. Now, we should be particularly interested to know where thriving open-air examples of the following are to be found:—*Abutilon vitifolium*, *Aralia Sieboldi*, *Berberis Nepalensis*, *Colletia horrida*, or any other *Colletia*, *Desfontania spinosa*, *Escallonia rubra*, and any other *Escallonia*, *Embothrium coccineum*, *Grevillea rosmarinifolia*, and any other *Grevilleas*, *Grislinia littoralis*, which should not only live, but bear berries, *Ilex latifolia*, and *I. balearica*, *Pittosporum crassifolium*, and any other *Pittosporum*, *Veronica Andersoni*, *Daphne Indica*. This is of course only a skeleton, or rather a suggestive list, capable of indefinite enlargement, as our friends may see fit to contribute information on the subject. Such plants as agaves, yuccas, and puyas deserve to be noted, for they are not everywhere hardy, and certain kinds, as, for example, the variegated forms of *Yucca aloifolia* and the variegated form of *Agave Americana*, are of the utmost value in the embellishment of the garden. Does the heliotrope exist anywhere in Britain as an *established* open-air shrub? We should not be surprised to hear that in some such spot as Torquay an old heliotrope might be found clothing a warm wall, and making the summer air rich with its fragrance.

We have selected to illustrate these remarks a very fine tree for a kind climate. This pittosporum is a robust habited shrub, with thick dark-green leaves and showy red flowers. In the Scilly Isles it would, no doubt, thrive "like a weed!" It reminds us of the very desirable species of the same genus, namely, *P. tobira* and *B. undulatum*, which produce delightfully scented flowers, and are so nearly hardy that they would need no aid of glass in a genial nook of the south-west.

S. H.

## ON GRAFTING AND BUDDING.

BY A. MURRAY, ESQ., F.L.S.,

And Member of the Scientific Committee of the Royal Horticultural Society.



THE changes which have taken place at Chiswick afforded so favourable an opportunity of procuring specimens and sections of the grafted portions of fruit-trees of different kinds, that it seemed to me desirable to use the opportunity to make up for the Horticultural Society a case of specimens illustrative of grafting, which might be placed alongside of the cases of Economic Entomology for similar purposes of instruction.

I have been the more induced to do so from the circumstance that Mr. Barron, our able superintendent, informs me that he finds

the theory and practice of grafting to be so little understood by the young gardeners who come to complete their education at Chiswick, that it is rarely that any of them are able to graft successfully until after the erroneous notions with which they come impregnated are eradicated and corrected. It seems that the drawings and woodcuts which are given of the process of grafting, by the most eminent writers on the subject, almost always convey an erroneous impression on the very point on which success entirely depends. The woodcuts of the slips and grafts prepared for adhesion turn the attention more to an equality of dimension, and to a correct fitting of the outside of the bark of the one to the outside of the bark of the other, than to an exact apposition of cambium of the one to that of the other, on which, in point of fact, adhesion and grafting absolutely and solely depend.

It appears to me that the exhibition of the specimens I have obtained for the Society's case may serve to bring before the eye the true merits and virtues of grafting and budding, as well as their disadvantages, in a form that may be useful.

I may observe that the specimens of which the collection consists have been obtained from Chiswick, and from Mr. William Paul. The specimens received from Chiswick consist of a selection of sections of fruit-tree grafts of all kinds and ages. The vast number of old fruit-trees at Chiswick, now condemned and about to be rooted out, furnished an almost unlimited supply of this material. Those from Mr. Paul are of buddings of roses of various ages, which I selected from the desire to show the difference of the effects of budding and of grafting on the part operated upon.

The Members of this Committee know very well that, in all instances of transfusing a part of one plant into that of another, whether by grafting, or budding, or any other mode, the only point at which transfusion or union can take place is the single outer circle of vessels which lies between the bark and the wood, in which the passage of the sap alone takes place, and by which the connection between the roots and the leaves, and the consequent deposit of wood and growth of the tree, alone take place.

I am afraid, however, that the more general impression is, that a branch grafted on to another, is united to the stock on which it is grafted throughout its whole surface; that it grows together as two parts of an animal body united by the first intention—as, for example, part of a finger cut off and immediately clapped on again. The examination of the specimens which I have brought together will serve to correct any such misapprehension. They show that there is no union whatever at any part of the wood of the scion applied to the wood of the stock, except at the single outer ring of the alburnum, already mentioned. Indeed, a small film of a brownish substance is deposited along every part of the applied surfaces, except the outer ring, where the union takes place; and some of the specimens which I exhibit show isolated deposits of wood and woody fibre enveloped in this brown deposit, which I imagine to be oozings of woody matter something analogous to what is called proud flesh in the animal body.



But what I wish particularly to point out is that in every instance the inner part of the applied surfaces where the union has not taken place, both of the scion and the stock, is in a more or less advanced state of decay. In no instance is this absent; it is an inherent necessity in the very process of grafting that the seeds of decay be shut up along with it. In fact, one inevitable ingredient in the manufacture of grafts, concomitant, co-existent, and inseparable from it, is the simultaneous manufacture of an ulcer in its heart. Exactly the same thing takes place in budding, although on a smaller scale—the larger the extent of the cut surfaces applied to each other, the greater being the extent of future decay; and of course in budding this space is small in comparison with that in grafting; and, of course, too, the smaller the amount of exposed surface or cut wood, the less will be the amount of ulcer or decay subsequently manifested in the heart of the branch. I was about to say that the smaller the amount of this surface, the greater would be the skill of the operator; but this would imply that the decay in the heart of the branch was injurious to the plant, and was, if possible, to be avoided; and I am not sure that we are to take this for granted. Of course, if we want a perfect tree complete of its kind, doing all its functions in the best manner for itself, and the general purpose it is to serve in organic nature, we must say that it would be better without the decay in the heart of the graft, and that that decay must be looked upon as a blemish. But that is not what we want in every case of grafting: in fruit-trees, we do not want a normal amount of fruit, we want an excessive amount; in rose-trees our demand for flowers is not limited to nature's natural bounty; like Oliver, we come back for more, not once, but many times. Now it is well known that one of the surest means of inducing an excessive production of flower and fruit, is to weaken the vitality of the plant. It is no uncommon thing to hear people say that a plant had killed itself by its excessive flourish the previous year, whereas it was not the flourish that killed it, but the plant, knowing that it was going to die, made a desperate effort to propagate its species before its life was extinct. Now, if the implanting of decay in the heart of a tree is injurious to the health of that tree, it may have the effect of inducing something of this excessive effort at propagation. I have heard it said that grafted trees always bear better than ungrafted; but as to that we have plenty of practical men who can speak with authority. It is to be observed, too, that the decay of which I speak is limited in its extent and slow in its progress. It is shut up and almost hermetically sealed in by the deposits of wood which have taken place subsequently to the union of the graft; and although I have called it an ulcer, it is only so in the sense of being a source of decay; there is no active or malignant principle at work; it is merely the gradual decay of a perishable body which is situated in the heart of the timber.

It may be asked, too, whether this decay in the heart really does any damage other than weakening the branch or stem at the point where it exists; for it cannot be disputed that to that extent at least it must be injurious. Is the heart of the stem of a tree of any



use to it except for the support and solidity which it gives it? We see old piped trees flourishing away after all the heart is gone, and nothing left but a thin rind. True, the flourishing is not so vigorous as in a younger and more solid tree. No great sturdy arms are thrown out; and the foliage is limited to a few clustered scrubby twigs. But it does not follow that this weakness of growth is due to the tree being piped. In such cases, we must remember, that tree has generally been growing in the same ground for, perhaps, hundreds of years, exhausting all the ingredients of the soil which are suitable for elaboration into its sap and fibre—and that if we remove the tree, and plant another of the same kind in its place, it grows no better than the old one, seeming to show, at all events, that it is not the mere absence of pith and heart-wood in the old tree which has caused the declension in its vigour of growth.

The principles of physiology, therefore, would rather seem to say that in all those cases (such as fruit-trees, roses, etc.), where the acquisition of solid timber (whether for the support of the tree or for the uses of man) is not the principal object, grafting, although attended by decay, is not attended with consequences injurious to the purposes for which the tree is cultivated. But where timber is the object, as in forest-trees, the case is different. The decay imbedded at the base of the stem gives an element of weakness to the tree at the very point where the leverage of the wind is strongest, and exposes it to be snapped off by the root. I do not think it can be said to be injurious to the growth of the timber in other respects; for immediately above the graft the timber is deposited in a solid and continuous stream; and I see no reason why the tree, in all other respects, should not be as good as an unworked plant. Still we all have a prejudice in favour of seedling trees; and I think that the liability of grafted plants to breakage from wind is quite a sufficient reason why we should continue to retain it.

## NOTES ON WINTER GREENS.



**B**RUSSELS SPROUTS.—Universally as this fine vegetable is esteemed, many amateur gardeners make mistakes in its management, and hence produce buttons far inferior to those to be seen in the baskets of the London greengrocers. Now, although tastes differ, we can safely say that this is the best winter green we possess, and especially worthy of being extra well grown, because the result of good culture will be handsome produce in such plenty as to prove that the liberal system is the most profitable. A short essay will suffice for all we have to say, but we wish it to be understood that every word is of importance.

The object of the cultivator should be to secure strong plants as early in the summer as possible. Therefore, the seed should be sown on a well-prepared seed-bed in February, or early in March, and the plants should be put out as soon as large enough to be

March.

lifted, and showery weather should be selected for the operation, or lacking rain, the plants should be shaded for a time, and regularly watered. A poor soil will not produce this vegetable in a state to be worth gathering; therefore, prepare for the plantation a deeply dug and well-manured plot. Our mode of procedure is to plant potatoes in rows four feet apart, and put out the Brussels sprouts between them two feet apart in the row. When the potatoes are taken up, the sprouts have the full breadth of four feet, and they very soon afterwards nearly meet across the rows, and it may be understood by that fact that we obtain our supplies of buttons from gigantic plants.

But we can do better than this, and now proceed to describe the better way. We make a sowing of seed in the first week of August, and as soon as possible thin the plants to three or four inches apart, and leave them to stand the winter. As early in March as weather will permit, we transplant them into the potato plot on a similarly good piece of ground in rows three or four feet apart, and they soon make a tremendous growth, and supply fine buttons in enormous quantity from the end of August until the month of March following. This practice answers perfectly on our cold damp soil, five miles north from London, and we take care to provide for the seed-bed a sheltered nook on the highest part of the ground. Were we located north of the Trent, we should sow in July to stand the winter in the open, and again in August for a few hundred plants, to be aided with some cheap protection. Whatever conduces to the early and luxuriant growth of this useful vegetable must be adopted as profitable, unless it is a very extravagant affair indeed. We expect to find our plants four feet high, and literally studded with round buttons the size of a small orange some time in the autumn, proportionate to the time at which the seed was sown.

Now, perhaps the reader would like to know what sort we grow, for there are many in the market, if we take the trade catalogues for gospel. Well, we always order "imported seed," and find that other so-called improvements are either no better or some degree worse. There are other valuable varieties of sprouts, such as the Feather-stemmed savoy, the Dalmeny sprouts, etc., etc.; but of Brussels sprouts there is but one variety, and genuine imported seed is the best.

One word more. The proper way to appropriate the plant is to remove the sprouts from the stem as soon as they are fully grown, and before they begin to expand. Continue this practice all through the piece from first to last, and when it appears that no more good buttons are coming, take the top cabbages, and you will find them a delicious vegetable, if nicely cooked. But if you take the top cabbage first, you will have very few good sprouts, and indeed what can you expect from the plants after they have lost their heads?

**SPROUTING BROCCOLI.**—This may be grown in precisely the same way as recommended for Brussels sprouts. If not well grown, it is simply unprofitable, but when well done is a most valuable vegetable, because it comes into use at a time when greenmeat is scarce. There are several sorts in the market, but only one is really

worth growing, and that is the old Purple Sprouting. However, the new White Sprouting is worth having where there is plenty of room, and a variety of spring vegetables is required. It is altogether too unproductive for a small garden.

SCOTCH KALE must be sown early and planted out early, and it cannot be too liberally cultivated from first to last. But if the ground is poor and the practice not quite first-rate, this is the best of all the winter greens, for it will make a fair return when badly treated. As to sorts, the old Tall Green Curled is the best, and we cannot advise the sowing of any other.

We plant Sprouting Broccoli and Scotch Kale in rows four feet apart, alternately with potatoes, and the plants touch one another long before winter, and present a most noble appearance. S. H.

## SEASONABLE NOTES ON BEDDING PLANTS.

BY THOMAS TRUSSLER,

Head Gardener, Knighton, Buckhurst Hill.



THE amateur who would have his flower-garden embellished in the most rich and tasteful manner during next summer must now be on the alert, and make preparations for propagating bedding plants of which the stock is insufficient, and for potting off geraniums and other things which were propagated in sufficient quantities last autumn. These matters are very frequently left until it is too late in the season to afford the plants an opportunity of becoming strong and properly hardened off, or until the pressure of other work prevents its being done with that care necessary to insure success. This being the case, it has occurred to me that a few hints will be of considerable service to many readers of the FLORAL WORLD, who may be anxious to do their best in raising a good stock of bedding plants.

Zonal pelargoniums, which have now become of such great importance in flower-garden arrangements, are best propagated in the autumn, as spring-struck plants do not flower so early when planted in their summer quarters. Yet if the stock of any of the varieties is short of the requirements, and the autumn struck plants have made sufficient progress to yield a supply of strong cuttings, a stock of healthy plants may be secured, provided there is no unnecessary delay. The most desirable way of propagating geraniums at this season of the year is to take off the tops and insert them round the sides of five-inch pots filled with light sandy soil; they strike more freely with the aid of a dry bottom-heat, and it is a most excellent plan to stand the pots on slates placed upon the flues or hot-water pipes. They may, with care, be struck on a hotbed, but with the moisture necessary for such things as verbenas or lobelias, they soon damp off. Whether the cutting pots are placed on hot-water pipes or not, water must be applied sparingly until they are furnished with

March.

roots and commence to grow. At this stage harden them off, and in a short time pot them singly in small pots.

Autumn-struck plants, which have been wintered several in a pot, must also be potted off separately as soon as it can be conveniently done. Three-inch pots and a moderately good compost should be employed, and it may be said with safety that it is a mistake to use the refuse from the potting bench for bedding plants of any kind. They have to remain in small pots for several months, and it is impossible to keep them in a healthy state unless they are potted in something capable of affording them nourishment. The houses and pits in which they are placed must be ventilated when it can be done with safety, and in very fine weather the lights may be drawn off the pits altogether for a short time in the middle of the day. Air-giving must be regulated by the weather, and it is probable that we may have some severe frosts during the month, so that no specific rules can be laid down. The chief aim of the cultivator should be to promote a sturdy growth, and to take every precaution to prevent the plants being drawn up weakly.

*Soft-wooded plants*, comprising lobelias, petunias, verbenas, heliotropiums, mesembryanthemums, tropæolums, violas, and alyssums may now be propagated in quantity, and spring-struck plants are preferable to those raised in the autumn. Ageratums may also be propagated, but the stock raised now will not come into flower so early as the autumn-struck plants. All the above-mentioned subjects require exactly the same management, and one set of instructions will apply to all of them. In the first place it will be necessary to place the plants from which it is intended to obtain the supply of cuttings in a temperature rather higher than that of the greenhouse, to start them into a vigorous growth. It matters not whether they are old stock plants in single pots or small plants in cutting pots, for all are equally suitable for the purpose indicated. When they have made from half-an-inch to one inch of new growth the tops can be taken off for cuttings. But before doing this, prepare a sufficient number of five-inch pots, by placing a two-inch layer of crocks in the bottom, and then, after they have been covered with some rough material, fill in to within half-an-inch of the rim of the pot with finely sifted soil, containing a liberal proportion of sand. This must be pressed firm, and on the surface place sufficient moist silver sand (a half-inch layer), and make that also very firm. The sand will then require sprinkling with tepid water, and the pots will be ready for the reception of the cuttings. The best cuttings are the tops of the young shoots taken off below the second joint; the lower pair of leaves must then be removed nearly close to the stem, and they may be inserted. This should be done with a neat pointed stick, and care taken to insure the cuttings being inserted firm, for unless this is done, a very considerable proportion will fail to strike.

The cutting pots as they are filled must be placed in a structure where they can be kept rather close, and also where they will receive the assistance of a bottom-heat of about 80°. Nothing can possibly surpass a hotbed consisting of equal parts stable manure and fresh leaves, upon which a frame has been placed. Of course



the fermenting materials must be thoroughly sweetened by being turned over several times after they are put together, before the bed is made up. The surface of the bed must be covered with finely-sifted clean coal-ashes to a depth of six or nine inches, to keep down the steam, and also to partly plunge the pots in. Where a pit is available for this work, a bed of either leaves or tan may be made up, filling the pit to within about a foot of the glass with the fermenting materials, and in the case of the leaves tread them firm to prevent them sinking after the pots are placed in the pit. Where it is not practicable to have a hotbed, as here suggested, one of the propagating frames manufactured by Messrs. Barr and Sugden will be found of the greatest value. They are heated with a lamp, and are so simple that there is no difficulty whatever in managing them.

The general management of the cuttings consists in keeping the cuttings moderately supplied with moisture by sprinkling them with tepid water about once a day, and air-giving. Just sufficient air must be admitted to allow the steam from the fermenting materials and the superfluous moisture to escape readily, for if this is not done, many of the cuttings will damp off. If, on the other hand, the frame is ventilated too freely, the foliage will flag, and the cuttings will suffer severely in consequence. When the cuttings are kept in the cucumber house, where, it may be said, they do exceedingly well, they should be protected with hand or bell glasses. It is also important to shade the cuttings in bright weather. As the cuttings become nicely rooted, gradually expose them to the air of the house, or when they are on a hotbed remove them to an intermediate house, or a warm corner of the greenhouse, and, in the case of the last-mentioned structure, keep the ventilators rather close for a few days. When nicely hardened off, pot separately, and use small sixties and a moderately rich compost. In about a fortnight afterwards they will be sufficiently established to admit of their being placed in a spot where they can be protected from frost; or they can be kept in a cool end of the greenhouse, as may be most convenient.

*Bedding Lobelias* may now be raised from seed to any extent. Plants from cuttings are undoubtedly the most uniform in growth and colour, but by care in selecting the seed, they will be uniform enough for all ordinary bedding. To secure a stock of seedlings with the least trouble, sow rather thinly in shallow pans, and place in a genial temperature, preference being given to the propagating bed with the cuttings. The seed will soon germinate, and when of a nice size to handle prick them off into other pans or boxes, at a distance of about an inch apart. Here they will become well furnished with roots and side-shoots, and when they are large enough to just touch each other, prepare a sufficient number of boxes, by filling them with a compost prepared as for the other bedding plants, or make up a bed of the same compost in a cold frame. In either case, plant them three inches apart each way, and if they are stopped once or twice a fine stock of plants will be the result when the time arrives for planting them in their summer quarters.

March.

The fact that these useful bedders may be raised most readily from seed cannot be known too widely amongst amateur gardeners.

*Bedding Calceolarias* which have been wintered in boxes and pans should be planted out on a bed of soil, covered with a portable frame. When this is done, the frame can be removed after the second week in March, and used for more tender subjects, as the protection of a mat will be all that will be required by the calceolarias after that period. The soil should be rich, and the plants put out at a distance of about four inches apart. After they have become somewhat established, nip off the points of the leading shoots, to encourage the development of side-shoots, and thus promote the production of bushy plants.

## HOW TO CROP THE KITCHEN GARDEN.

BY A KENTISH GARDENER.



O obtain the greatest amount of profit from the kitchen garden a proper system of cropping must be resorted to—a system by which a change of crop will, as far as is practicable, be made every year, and the space provided for the respective crops when the time arrives for sowing or planting them. That is to say, the quarter that was occupied with one class of vegetables last year should be planted with a totally distinct class this year, and the planting so arranged that as the time arrives for planting one crop a vacant plot shall be ready for it. If this is not done, the cultivator will at one period be unable to provide accommodation for all the crops he is anxious to grow, and at the other the garden will be half empty. I am perfectly aware that it is not possible to carry out a perfect system of rotation in small gardens, for the space will not admit of its being done; but much more might be done than is the case at present in that direction. Having had a very lengthy experience in cropping the kitchen garden, I have ventured to offer a few hints on the subject, which I trust may prove useful to the amateur, for whose information they are penned.

In the first place, allow me to observe that in commencing operations in the spring—for that is when the real work of the kitchen gardener begins—the mind must be carried somewhat in advance of the work, for we have not only to look at the effect of present arrangements, but we must endeavour to foresee how it will run in with the after-crops, and for facilitating the changing of the crops another year. Those who have neither mind nor eye to do so will soon get into a confusion, and render a systematic progress impossible for that year. With only a moderate amount of forethought, the cultivator can see one whole season before him; and with only a little preparation, can select the sites for his crops another year. He should avoid distributing his crops in a haphazard manner, such as sowing his onions in small patches in various parts of the garden,

and his carrots and beetroot the same, but should endeavour to place them side by side on one quarter of the garden, and the parsnip beds with them; he then will be able to see that when the onions are removed in August the ground will come in well for a bed of spring cabbages, to be planted in the autumn; and when the other crops are removed, and the ground well manured and trenched during winter, it will serve for an early crop of cauliflower the next spring, and the first batch of Brussels sprouts; or it might be used for an early crop of potatoes, to be followed as soon as taken up in July by winter and spring broccoli. In either case, such an arrangement will be a distinct change in crops, and will secure those belonging to the cabbage tribe being together. If the quarters are large, and will admit of the peas for the season's supply being one of them, it should be set aside expressly for them, commencing at one side with the first crops, and continuing them so throughout. But rather than crowd them, it is advisable to distribute peas over all the garden, for they will always pay for their room. Six feet apart is the least distance for tall peas, but twelve feet is better for such varieties as the Hundredfold, British Queen, Ne Plus Ultra, and a few others; and such distances admit of a fair average crop of any other vegetable between, which will suffer nothing, but be rather benefited by the shade. But assuming that they have been sown upon one quarter, our next business is to consider to what other purposes we can put the ground after they have done bearing. Taking the first crop that was sown, there can be sown between the rows a crop of summer spinach or radishes. This crop of peas, and the crops of other vegetables between the rows, will be cleared off the ground about the third week in June, which will be in excellent time to get out a crop of Brussels sprouts, Scotch kale, or a good white winter Broccoli.

As the second crop of peas is removed, there will be more room given for spring broccoli, which should be planted as fast as possible up to the middle of August. Supposing the broccoli has filled up half of the quarter, there will still be vacant spaces between the later peas; and here I would put out the main supply of celery, one trench between each two rows of peas. As soon as these are off, and there is more space between the celery trenches than is wanted, let it be filled up with coleworts for autumn use; these will come away in ample time for the earthing of the celery. Such, then, is the cropping of one quarter of the garden for a year. If the reader will take the trouble to consider it over, he will find that by working out this rotation two crops are secured in one year. It will be seen, too, that by this arrangement the crops are uniform, and follow each other well, for the quarter is in full work all the summer, and in the autumn it is well stocked with winter subjects, and they altogether, not in patches in various parts of the garden, which would sadly interfere with the necessary operations of pulverizing the soil.

By looking ahead still farther, we shall find this same quarter the next summer, or that portion where the celery grew, cropped with onions, parsnips and carrots, for which the extra moving of the



soil necessarily attending the cultivation of celery has rendered peculiarly fitting. On the other part, a good gardener would only grow what I may call a short crop after the spring broccoli is over, because he would be anxious that during the next winter it should be vacant, that he might by ridging or trenching expose it to the action of the frost. A crop of potatoes, or dwarf kidney-beans, would fill up the space well, and leave the ground about the same time as the other half would be ready for a winter's rest. Thus we see what can be easily effected by management and forethought, for we have this same quarter that was cropped heavily the last winter quite empty this, which a winter's rest will greatly benefit.

Let us now turn our attention to a second portion of the garden, which we will suppose is cropped with early and second early potatoes. These will be used up by the end of August, and we still find it work in well according as the potatoes are dug up for cauliflower and Walcheren broccoli; and if there should be room, there will still be waiting for a spot the sprouting broccoli, cottager's kale, and other kales. In view of this arrangement, a piece of ground of the required breadth should have been left unoccupied in the spring, by the side of the potatoes, for savoy, that when the other winter greens are planted they may be all together. In the case of savoy, to have them large, plant in June upon soil that has not been previously exhausted by a crop; hence the importance of resting a piece of land for them. Probably upon the same quarter would be planted the first and second crops of spring cauliflowers; in that case they would come off in excellent time for the soil to be trenched up for a bed of winter spinach. Here, again, we find another quarter at the close of summer devoted entirely to winter crops, and all the arrangements as complete as circumstances will allow them, and this secured only by an ordinary degree of forethought. If I might still secure space, I would call the reader's attention to what are generally considered permanent crops; amongst these I may include asparagus beds, strawberry beds, plantations of rhubarb, seakale, and the globe artichoke. These the cultivator should endeavour to have near together, for some of them are untidy subjects, and if dotted here and there about the garden they render it both unsightly and unmanageable. But with the rhubarb, seakale, and artichokes, if there is an odd corner to spare, let them occupy it with the bush fruits, such as raspberries, gooseberries, and currants; they ought not to occupy positions all over the garden, as they are not only less productive when continually bruised and knocked about by wheelbarrows and spades, but they are ever in the way, and frequently interfere with important operations; and as these are subjects that delight in a cool strong soil, they ought to be planted at the north end of the garden.

In every garden, and to supply the wants of most families, there will be required a greater variety of vegetables than I have as yet enumerated. But as these are chiefly summer crops, they ought to have a quarter devoted to their use upon which the stronger growing broccolis, etc., grew the last year, as this will be an agreeable change of subjects for the land; early turnips in March, and dwarf



kidney-beans in April, we may reckon as the first; then, amongst others, there will be Scorzonera and Salsify, vegetable-marrows, ridge cucumbers, broad beans, as well as the scarlet-runners. The early turnips and some few others amongst the above will be off the ground in time for another crop the same year, and to follow them, lettuce or any other salading will do to keep the ground from being idle, and will be sure to be found useful.

The culinary herbs, although trivial subjects to some cultivators, are to others of some importance, and should not, therefore, be treated as if they were of no consequence, which is sometimes the case, and then people wonder why they fail to do well. Many of them require a warm, well-drained border, and carefully transplanting every spring. For such as spearmint, fennel, and tarragon, a less favoured spot will serve; but for sage, thyme, savory, and majoram, the warm border should be given them.

## ON SPRING FLOWERS.

BY GEORGE SMITH.



ONLY those who have enjoyed it can have any conception of the gratification to be derived from a well-selected, well-filled flower-garden during the months of March, April, and May. Probably, in spite of all that has been said, some of our readers are strangers to that style of gardening. I propose to pen a few notes which may be serviceable to them, especially as the season of spring flowers is near at hand. There are hundreds who, if they only knew how charming a flower-garden may be made to appear through the spring months, would not hesitate for a moment, and would cheerfully give the requisite labour to accomplish so desirable an end. According to the amount of zeal displayed, with of course a little skill, there will be a corresponding amount of pleasure insured at a time when the majority of gardens present nothing but the naked earth in the beds, and when every flower is hailed with pleasure. My own experience of spring-flower gardening is such that, although I only imperfectly worked it out, afforded much more pleasure to those for whose gratification it was done than the summer display of flowers in the same beds afterwards.

In my own case, a portion of the old soil is taken out of the beds every year, when the spring flowers are taken up, and its place supplied with fresh rich soil, which is well incorporated with the old staple. This plan must be adopted by those who wish to cultivate with success spring and summer plants in the same beds, and unless any one can do this, they must be prepared to see their summer bedders make but a poor display. One objection is, it takes a lot of labour to work up and keep the stock in good condition, especially as the principal trouble occurs at a season when the gardener is

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pressed with other work. But at the same time, the result to be obtained is worthy of a strong effort, and I am sure there is neither an employer nor a gardener but would strain a point to secure it, if they have any love for spring flowers, and if they only know how good a display may be made with these hardy and, as some will say, simple subjects.

Amongst the most useful plants for spring decoration, I will first name the blue and white *Forget-me-nots*, as they are perfectly hardy, easy to manage, and, above all, very showy. The best way to make sure of them is to buy some strong clumps in summer, and part and plant in the kitchen-garden for next season's flowering. They should be planted in a rich soil three inches apart, and kept shaded and moist for a fortnight. They will make fine large tufts by the end of October, and as soon as the summer bedders are over, they may be removed to the beds where they are to flower, always providing that the beds have been well dug up first. It is astonishing what a nice effect these have when arranged with taste, as, for instance, one bed may be planted in lines, blue and white alternately; then another bed may have a centre of white and the remainder of blue. Then, again, the last arrangement may be reversed, with a blue centre and a white body, or the whole body of a bed may be filled with blue or white, and edged with the other colour, as the case may be. I find the best way to manage these subjects, when I raise them from seed, is not to depend upon yearly plants, but to sow the summer previously, on some outside spot, and let them flower where they were sown. I cut away the flower-stems, and divide, and plant out in August, as above advised. Plants so secured are not only stronger but they flower earlier, which is a consideration of some moment.

The *Pansy* must come next on the list for a really useful and easy subject to deal with for spring flowers. There is no concealing the fact that those which are called the *Cliveden Pansies* are the best for this purpose, and those who wish to shine in this department cannot well do without them, for their colours are so distinct that they enable any one who possesses them to effect a much better combination of colours than could be otherwise done; nevertheless, all but the more choice-named pansies will flower sufficiently early to produce a brilliant display from the beginning of April onwards; and where plants are not to be had or cannot be purchased, a shilling packet of good mixed seed will serve the purpose. If it is sown thinly in July on a rich loamy soil, and kept shaded and watered in dry weather, the plants will be sufficiently advanced to transfer to the beds by the end of October. These will commence to flower, if we have mild weather, in March, and continue to do so throughout the month of May, if required, and allowed to remain.

Then comes the *Daisy*, either for separate bed or lines; or it may be used as edgings to some taller-growing subjects; but the colours should not be mixed. These, like most of the subjects for early flowering, require to be planted rather thickly to be effective. It is a good plan to buy a lot in flower, so as to secure brilliant colours and keep up the stock by dividing every summer.

The different varieties of *Primroses* and *Polyanthuses* are admirably adapted for massing or in lines. Take up old plants in August and divide, choose a shady border, and plant them in rich-leaf soil, and they will have good roots by the autumn. The common single yellow, the double white, and the double lilac primroses are the best for bedding. As to polyanthuses, if seed is sown in May and grown on, they will make fine plants by the succeeding autumn, but another year's growing in the reserve ground is good for them.

Another subject I use, and one which cannot well be dispensed with, as it not only serves to increase the variety, but its height serves to break up the otherwise even surface of the beds, as most of the other plants used are very dwarf-growing subjects; I allude to the single *Wallflower*. As we should aim at something like a systematic arrangement, the same as for the summer bedders, it is best to get these plants from cuttings, put in as early as they can be got in the summer, so as to secure their colours separate, which cannot be done if we depend on seedlings. By this plan we get almost a pure yellow, a blood-red, and a very dark variety, and as many different shades as are desired. I am content with the three distinct colours, and it is not desirable to grow more of them than are required, as they impoverish the ground so much. The double varieties would be preferable, but they are not so hardy as the single ones, and generally do not flower so early. At some nurseries very choice kinds may be met with, and it is well to buy a few when in flower.

The next best of early-flowering plants is the *Aubrietia*, and no spring garden can be said to be complete without it, for when well-established plants are put out sufficiently close together in the beds they are indeed very effective, and in ordinary seasons they will bloom from the middle of March to the middle of June. *Aubrietia Campbelli* is of a beautiful violet-blue, one of the best. *A. deltoidea* is a neat early-flowering variety of a lilac colour. I saw another last spring, called *A. spathulata*, very distinct. But they are all good, and worthy of more extended cultivation; they are easily increased either by division or slips, but they do not like the direct action of the sun immediately after removal. As perfectly hardy plants we have none which surpass them for spring flowering, and on dry sandy soils the variegated *Aubrietia* makes a splendid edging.

Two more fine subjects are *Arabis alpina* and *A. lucida variegata*, both very essential plants for early flowering. They withstand the cold weather perhaps better than any of the other subjects named.

But I must not stop here, for we have yet the *Alyssums* to cheer us up with their bright yellow flowers, and the best of these for early flowering, whether for beds or borders, are the common *Alyssum saxatile* and the *variegated-leaved variety* of the same species. We have also the *Iberis sempervirens*, which flowers at the same time, and is one of the purest white early-flowering plants we have. It is a capital companion to the alyssums, being dense and neat in habit. These should be increased from cuttings late in the spring, and be planted out one season previous to being wanted for spring decoration.

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Then I grow for an early bed the *Tussilago alpina*. It is not usual to find this anywhere except in shrubbery borders, but in a mass it makes a fine bed in the early spring, and it also adds variety. It is easily increased by division as soon as done flowering, when, if the smallest piece is planted out in the shade, it will make a good plant by the autumn.

## GRAPE VINES IN GROUND VINERIES.

BY GEORGE GRAY,

Head Gardener at Ewell Castle, Surrey.



IN commencing the cultivation of the grape vine in the portable structures commonly known as Ground Vineries, it is necessary to consider which is the best of the numerous forms now before the public, the best sorts of grapes to plant, and the soil most suitable for insuring a vigorous growth.

Much depends upon the character of the structures; for, unless they are made in a manner that will admit of the vines receiving the necessary attention without difficulty, it is very certain that, in the majority of cases, the vines will suffer from neglect. The ground vinery which has the greatest advantages is unquestionably that manufactured by Messrs. W. S. Boulton & Co., of Norwich. It is portable in the truest sense of the word, for it can be moved from place to place without difficulty; and, when shifted from one part of the garden to the other, it can be set to work again instantly. Added to this, the glass is fixed in sashes several feet in length, and air can be admitted, or the glass removed for the vines to be syringed or otherwise attended to, without the trouble attendant on the removal of loose sheets of glass. The sides are of wood, but if they are placed on a course of bricks, they will remain sound for a large number of years. Of those made in earthenware and glass, that manufactured by Mr. B. Looker, of the Norbiton Potteries, Kingston-on-Thames, is undoubtedly the best; for, whilst substantial in character, it is light in appearance, and the glass is easily removed, although not, perhaps, quite so readily as in Boulton's. The most suitable width is either three feet or four feet, as two rods can then be trained side by side. In ground vineries of lesser width, there will not be room for more than one rod. The length of each vinery must be determined by local circumstances, such as the amount of money to be expended, and the space at disposal; but, as a rule, vineries twenty or thirty feet in length will be the most desirable. Each vine, whether trained to a single or double rod, will require about ten feet run of vinery; and, therefore, one vine should be planted to every ten feet length. In planting the smallest of the two sizes above mentioned, put a vine at each end; and in the case of the largest size, put one at each end, and one twenty feet from



one of the ends, and train it towards that end. By that means each vine will have its proper space, which would not be the case if the third vine was put exactly in the middle. When there is room enough for four vines, let one be planted at each end, one exactly in the centre, and one half-way between the middle and one of the end vines. It is quite unnecessary to make borders in the same manner as borders for houses are made; but it will be beneficial to the vines if a few barrowsful of turfy loam, and a barrowful of lime-rubbish, and the same quantity of horse-droppings, are dug in where the vines are to be planted. Soil that is undrained, and of a cold and retentive character, is quite unfit for vines; and, unless it is possible to raise the border in which they are to be grown partly above the surface, it will not be of much use to plant them; for, in unfavourable seasons, there will be a great difficulty in securing good crops.

The ground vineries should be placed upon four or five courses of bricks laid upon a level surface, so that there will not be much danger of their sinking. The vines will then have sufficient head-room, and there will be an abundance of space for the development of the foliage. The vines may be allowed to lay upon a floor of slates; but it will be preferable to train the canes to wires fixed about six inches below the lower edge of the glass. One wire to each vine will do; but, as the expense is trifling, it is preferable to have three or four wires, stretched parallel to each other at regular distances apart, for the better regulation of the lateral growth, and the support of the branches. Strips of wood will do as well as wires, except that they will not last so long.

In erecting the side walls—which can be built with or without mortar, at discretion—a few openings, just large enough for a half-brick, should be left for ventilation purposes. As a rule, the air should be admitted at the tops, for cold currents of air are not desirable; but occasions may occur for ventilating at the sides, and it is always well to be prepared for emergencies.

The best sorts of grapes for ground vineries are the Royal Muscadine (white); Black Hamburgh (black); and Kempsey Alicante (black). Select vines struck from eyes a twelvemonth since, which can now be purchased for about three shillings and sixpence, and prune them to within about three buds of the base. As soon as the border is prepared, plant them in the manner indicated above. In turning them out of the pots, remove the crocks, and loosen the roots round the outside of the ball of soil, to facilitate their striking into the new soil immediately they begin to move in the spring. To encourage the production of roots from the base of the stem, bury about two inches of the rod. It must be distinctly understood that, even if the canes are of a considerable size now, they must be cut back; for if they are left unpruned, with a view of obtaining a crop of grapes the first summer after they are planted, a loss of one year at least will be the result; for the lateral shoots will be so weak, that no fruit worth having will be produced, and, at the winter pruning, it will be necessary to prune back the vine to nearly the ground level, for the purpose of obtaining a cane full of health

and vigour. Pruned as here directed, and managed with ordinary care, the canes will attain a length of ten or twelve feet, and be of a proportionate size. The following winter, prune them to about half their length, and in the spring a side-shoot will be produced at every bud. About nine inches will be the proper distance for the side branches to be apart on each side; consequently, if the canes are short-jointed, and the buds rather close together, it will be necessary to remove every other shoot on each side of the vine when about two or three inches in length, or as soon as it can be seen which will be the strongest. In all probability, one or more bunches will be produced on every lateral branch; but, as four bunches are as many as it will be prudent to allow each to carry, the least promising must be removed at an early stage. All the shoots, with the exception of the one at the end, must be stopped when about twelve inches in length, those bearing bunches being stopped at either the first or second leaf above the bunch. The end shoot must be trained along the wire to take the place of that portion of the cane removed at the previous winter's pruning; and it will require stopping at about twelve inches beyond the point to which it will be pruned back the succeeding winter. The following winter, the necessary pruning will consist in shortening the leading shoot as required, and in cutting the lateral branches back to one eye. In the spring, the portion of the main cane produced the previous summer should be managed the same as advised for the other portion the year previous. In all probability, two or three laterals will be produced at each spur after the canes are two years old; and, as one will be sufficient, all but the one most promising to each spur must be removed when a few inches in length.

The summer management consists in ventilating the frames, stopping the laterals as required, pouring water on the floor for maintaining a proper degree of atmospheric humidity. During the summer season, the vines may be watered if the weather happens to be dry enough to render it necessary. The bunches will require thinning, but it must be done in a careful and moderate manner.

## TERRESTRIAL ORCHIDS.

BY GEORGE GORDON.



OF the large number of exotic orchids in cultivation, the terrestrial species, that is to say, those which grow in the soil in their native habitats, form but a very small part. They are, however, all deserving of the estimation in which they are held by experienced orchid-growers, and I gladly comply with the request of a correspondent, and offer a few hints on their cultivation.

**CALANTHES.**—First we have the lovely *C. veratrifolia*, with its immense spikes of pure white flowers, which are produced in such abundance during the months of May and June as to render it invaluable for the summer exhibitions. Then there are the pretty

little *C. vestita* and *C. lutea*, both of which are good. They are so very nearly alike (the only difference being in the colour of the eye) that one variety in a collection is quite sufficient unless it is a large one. For my own part, I prefer *vestita*, which has a pink eye ; the other has a yellow one. And, again, there is *C. furcata* and *C. masuca*, desirable things in their way, the last-mentioned being of great value for exhibition. Dominy's charming hybrids, *C. Dominii* and *C. Veitchii*, should also be in every collection. The last has large pink flowers which are freely produced during the winter, and are of great value for bouquets.

To have them in perfection, let them have the assistance of a temperature varying from 70° to 80° during the summer months, and about 55° during the winter. A compost of two parts nice light fibry loam, and one part each of peat, rotten leaf-mould, thoroughly decomposed cow-dung, with a little sharp silver-sand, will be in every way suitable to them. The pots must be effectually drained and clean, and the plants must not be overwatered at any period of the year, especially during the winter, when it must be nearly (if not quite) withheld. The bulbs must not be allowed to shrivel, but there need not be much fear upon that point if the plants have had sufficient light to thoroughly ripen the bulbs, and unless they are matured, it will be useless to expect them to bloom in anything like a satisfactory manner. They are best grown as near the glass as practicable, and should receive as much light as possible without being exposed to the direct rays of the sun during the hottest months of summer. I think it will be scarcely necessary for me to say that if the sun shines directly upon them, the leaves will be burnt, and the plants will suffer material injury.

PERISTERIA, the "Dove Flower."—*Peristeria alata*, which is also known as the *Esperitu santo* (Holy Ghost Flower) of the Spaniards. The flowers are not very showy, but they are exceedingly interesting from their close resemblance to the bird after which it takes its popular name. In my opinion, its magnificent foliage is of itself a sufficient reason to claim for it a place in the orchid-house ; for when well grown, with leaves from four to five feet in length, and of a proportionate breadth, it has a very imposing appearance amongst the other plants. The same temperature, soil, and treatment, as recommended for the *Calanthe*, will answer admirably ; therefore, it is not necessary to enter fully into the cultural details.

PHAJUS.—The three fine species known respectively as *P. albus*, *P. grandiflorus*, and *P. Wallichii* should be grown in every collection, more especially the two latter, for they have very bold and handsome foliage. The two latter will do in a temperature of five degrees lower than the *Calanthe*, and require a richer soil. They all grow freely, and bloom profusely when potted in a mixture of equal parts of fibry loam, leaf-mould, and rotten cow-dung. *P. albus* does very well treated exactly the same as the *Calanthe*.

SOBRALIA.—This genus should be well represented in every orchid-house, as some of the species are very lovely ; especially to be noticed is *S. macrantha*, which produces its immense and beautifully-coloured flowers for a long time in succession from the old

spathe. Although they require a generous temperature, say when growing 75° to 85°, and 65° to 75° during the winter, they may be placed in the conservatory for two months at a time, when they are in flower. Of course the cultivator must be careful enough not to put them where they would be in a direct draught, and also not to overwater them, and to bring the change about in a gradual manner, both in bringing them into the conservatory from the orchid-house, and in returning them back again. The best specimens I have ever seen of the *Sobralia* were grown in peat and silver-sand, prepared in the same manner as it is for potting Azaleas, and such like plants; and they had abundance of drainage, the pots being about half full of crocks. *S. macrantha grandiflora* is a fine variety that can be highly commended, and *S. Ruckerii* is very good

## NEW ROSES RAISED IN LYONS.

BY M. JEAN SISLEY.



**A**MAZONE.—Tea-scented; dark yellow. Ducher.

*Anna Ollivier*.—Tea-scented; light rose. Ducher.

*Antoine Alléon*.—Hybrid perpetual; cherry. Dalmaizin.

*Belle des Jardins*.—Striped Provence; purple striped white. J. B. Guillot fils.

*Bouquet d'Or*.—Noisette; dark yellow. Ducher.

*Marie Accary*.—Noisette; white. J. B. Guillot fils.

*Madlle. Fernando de la Forest*.—Hybrid perpetual; rose. Dalmaizin.

*Madlle. Marie Arnaud*.—Tea-scented; yellow. Levet.

*Madlle. Marie Cointet*.—Hybrid perpetual; rose. J. B. Guillot fils.

*Madame Chaveret*.—Tea-scented; yellow. Levet.

*Madame Docteur Jutté*.—Tea-scented; yellow. Levet.

*Madame Francois Janin*.—Tea-scented; yellow. Levet.

*Madame Lacharme*.—Hybrid perpetual; pure white. F. Lacharme.

*Madame Marius Cote*.—Hybrid perpetual; cherry. J. B. Guillot fils.

*Mons. Henry Bennett*.—Tea-scented; light rose. Levet.

*Mons. Claude Levet*.—Hybrid perpetual; crimson. Levet.

*Mons. Pierre Seletzsky*.—Hybrid perpetual; purple. Levet.

*Ma Surprise*.—Microphylla; white shaded pink. J. B. Guillot fils.

*Marcellin Roda*.—Tea-scented; white, yellow centre. Ducher.

*Mont Rosa*.—Tea-scented; salmon. Ducher.

*Perle de Lyon*.—Tea-scented; dark yellow. Ducher.

*Perle des Blanches*.—Noisette; pure white. F. Lacharme.

*Reine Victoria*.—Ile Bourbon; bright rose; J. Schwartz.

*Souvenir de la Duchesse Amelie*.—Hybrid perpetual; purple. Liabaud.

*Thé à Bouquet*.—Tea-scented; white, striped red. Liabaud.



*Vallée de Chamounix*.—Tea-scented; yellow. Ducher.

To economize carriage and packing, those who desire these new roses can write to either of the seven horticulturists who obtained them.

## LLOYD'S WALL COPING FOR THE PROTECTION OF FRUIT-TREES.

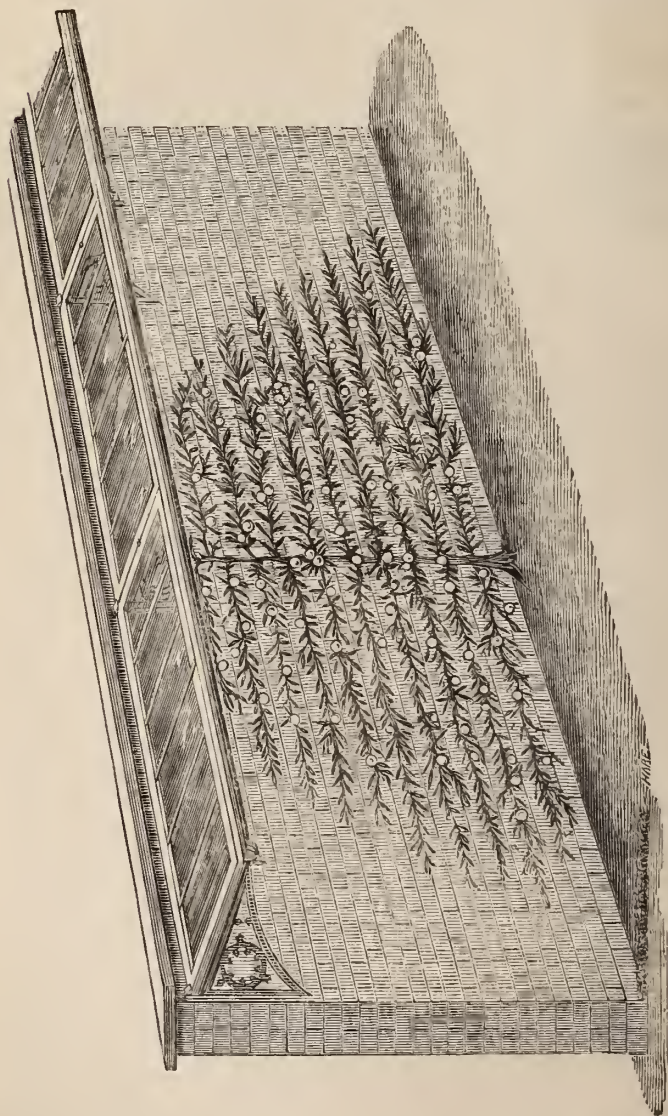


WE have recently had our attention directed by Mr. Lloyd, the well-known horticultural builder, of Grantham, Lincolnshire, to a new wall coping, manufactured under the name of the "Portable Fruit-tree Crymobœthus," which has been designed for the protection from spring frosts of fruit-trees trained to walls. This coping, we are assured, on the most undoubted authority, is one of the best forms of coping that could possibly be had, and in every way adapted for the purpose for which it is manufactured. The sashes are made in six-foot lengths, and are supported by cast-iron brackets, as shown in the accompanying illustration, so as to render them thoroughly secure. They are also, it may be well to add, made thoroughly portable, so that they can be put up and taken down in the most expeditious manner by an inexperienced workman. The brackets are also made to receive gutters, for the purpose of carrying the water from the glass to the end of the coping, instead of allowing it to drip down and splash over the trees. But, in the case of fruit-trees trained to walls, protection of some kind is needed, there can be no doubt, for the failures of the last few years have been sufficient to show, that without protection the crops of the choicer kinds of wall-fruits, such as peaches and nectarines, are of such a precarious character, as to render it almost a waste of time to give the trees the necessary attention to keep them in health. It is not, therefore, necessary to advance any argument in favour of protection, although there are, it is true, a few people who object to protecting trees; but the mode and material are often at fault, for it is certainly most objectionable to cover the trees in such a manner as to prevent their receiving a fair share of light and air. The fact that an excess of moisture when the trees are in bloom is nearly as dangerous as a sharp frost, must not be overlooked; and, further, it should be remembered that the blooms are capable of resisting the effects of a sharp frost much better when perfectly dry than when wet. Therefore, in keeping the flowers dry, one most important step is taken towards the preservation of the crop. This protection the invention under consideration affords in a most material degree; for whilst admitting the light to the trees without let or hindrance, it effectually protects the blossoms from rains and heavy dews. To afford still further protection to the trees, tanned netting, tiffany, scrim, canvas, or other protecting material, can be hung from the coping to the ground, and kept in its place with the aid of a few poles or tubular iron pillars, which are supplied when desired by the manufacturer. The wall-trees are now bristling with flower-buds, and, owing to the mildness of the winter, they will be in full bloom within a com-

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paratively short period; and there is every reason to fear that, as was the case last year, the flowers will be cut off by the spring frosts, unless efficient protection of some kind is afforded.

It consequently behoves all who have wall-trees to determine at




LLOYD'S PORTABLE FRUIT-TREE CRYMOBOETHUS.

once the kind of protection they intend affording their trees, and to make preparations accordingly.

For prices of the "Crymoboéthus," we must refer our readers to the manufacturer.

## DIGGING FLOWER-BORDERS IN WINTER.

 O me it appears a great mistake to dig either before Christmas, or for some weeks after, those borders that contain mixed collections of flowering bulbs and plants; and yet this is commonly done, because certain traditional rules must be observed, and are continually being enforced in some of our garden calendars. These calendars say, "All borders must be dug before Christmas, previous to frost setting in, so that the earth may be benefited." I am not a disciple of this mode of teaching, for on all possible occasions do I evade it, though employers are often very urgent for its adoption, as a matter of neatness and order; and so far they are right. But I can with the hoe and rake comply with this wish without disturbing the soil either with the spade or fork until the period I consider it desirable. Now, I argue that from the middle of February to the middle of March is the most suitable time for digging or forking the border. My reason may be briefly stated. If you begin and finish the operation in the autumn, you must, in the act of digging, unless they are specially marked, disturb occasionally the clumps of bulbous roots and other plants whose crowns may not be visible. Such things as pæonies, delphiniums, day-lilies, etc., are very likely to suffer. Many of those plants that are partly hidden by leaves and earth are injured at the roots, if their crowns are not damaged. I contend, also, by disturbing the soil to the depth it is done, that the late autumn rains are allowed to penetrate more freely, and thus the earth to a certain extent is deprived of its natural heat, and, should frost set in, its severity will be felt quicker by those plants whose roots have been so far exposed by the digging. If the decayed stalks of plants and other rubbish are removed, and the ground somewhat levelled with the rake in the autumn, and otherwise made to look neat, that will suffice to the period for digging which I have recommended. It must not be forgotten that in some winters the earth, for several weeks, is more or less hidden by a covering of snow.

But the main object of my recommendation is this: I believe that we shall the better preserve many of our dwarfest herbaceous plants whose roots travel but a few inches below the surface, and from whence are issued their future flowering shoots. Besides this, we are, by the postponement of the digging to the dawn of spring, enabled to ascertain the exact spot where the bulbs and other hitherto dormant roots are planted. We can then avoid destroying their rootlets; and if we are using manure, we can then judiciously supply it to the roots of those plants that most need it. Of course, if a re-arrangement of the plants in the border is necessary, then the autumn is the most advisable season for that operation. Late digging has also this advantage, that where you sow annuals or transplant them in a small state, the early weeds are not so apt to get in advance of their growth, and in plying the Dutch hoe you can readily discern the plants from the weeds. Another benefit is

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also realized by the late digging, and that is, the ground not being previously soaked by the heavy rain of winter, the warm but genial showers of spring have freer access to the roots, and thus increase the fertility of the soil.

HEAD GARDENER.

## NOTES ON GLOXINIAS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



GLOXINIAS are so similar to the *Achimenes* in their requirements, that in speaking of them it is not necessary to allude to the general details, for a reference to the paper on the last-mentioned flowers, which appeared in the February number, will furnish the desired information. The manner of increasing *Gloxinias* is very different, and for the information of those who are fond of propagating plants and have the proper convenience, I will offer a few hints on the subject.

In the first place it must be stated that there are two ways of increasing *Gloxinias*, one by seed and the other by cuttings of the leaves, and also that to be successful the aid of a hotbed or stove will be required. Nothing better than a cucumber or melon frame, or an early vinery, could be desired, and wherever there is one of these structures there also may these flowers be propagated *ad libitum*, and grown to a state bordering on perfection. Perhaps the best course for a young beginner to pursue would be to purchase shortly a dozen or so of small corms, of the best of the cheap kinds, and then save his own seeds. The next best plan will be to buy a packet of seed from a reliable seedsman, and sow it as I shall advise, with as little delay as possible. There is but little danger of being supplied with seed saved from inferior flowers, for the simple reason that few varieties, excepting those which are really first-class, are to be met with in either trade or private collections. It must, of course, be understood that the *Gloxinia* does not reproduce itself true from seed, and even where the greatest care is taken in the matter, a very considerable number will not be equal to the best of those from which it has been saved. At the same time it is quite possible that some of the seedlings will surpass their parents, and it is certain that all will be sufficiently attractive to be of considerable value for decorative purposes.

Having procured the seed, prepare a sufficient number of pots, by filling them first to about half their depth with crocks, and the remaining space with a mixture of peat, leaf-mould, and sand, broken up very small and the rough portions removed. The soil must be made fine to admit of the seedlings being transplanted without receiving any considerable amount of injury. Make the surface level with a piece of board or the bottom of a flower-pot, scatter the seeds thinly and regularly over it, and cover with a sprinkle of silver sand. It is not desirable to apply water immediately after the seed



is sown, and for that reason give the soil a thorough watering previously. Place the seed-pots on the hotbed, or in a hot-house, and lay a piece of glass, or a little moss which has been scalded, over the pot, but the glass is preferable. Keep the soil moist without being in a state of saturation.

When the young plants are fairly above the surface, tilt the glass a little on one side, and in a week or so afterwards remove the glass altogether, care being taken to prevent the exposure of the young plants to the sunshine or currents of air immediately afterwards. It is important to transplant them into other pots, or to pot them off singly as early as possible, but it must not be done before they have acquired sufficient strength for them to be handled without risk of injury, and that will be when they have two or three leaves each the size of a fourpenny piece. The pots will require a few pieces of crock in the bottom, and to be filled with a light, open compost, as advised for the *Achimenes*. Fill the soil in rather lightly, make a hole with the finger where the plant is to be inserted, lift the latter out with a small flat piece of wood, and drop it into the hole, and press the soil about the roots and sprinkle them overhead. Afterwards they can be placed with the general stock. A few may flower in the autumn, but whether they do so or not is of but little consequence, for a stock of corms capable of making a grand display the year following will have been secured.

In propagating them by cuttings, take the full-grown leaves which have become firm with about half an inch of the leaf-stalk and insert them rather close round the sides of five or six-inch pots, and put the pots in the same structure as advised for the seed-pots. The leaves that will not strike will soon decay, whilst the others will remain quite fresh. Those which remain fresh will quickly become furnished with roots, and in the course of a comparatively short period corms will be formed; sometimes the latter will push up young leaves, whilst at others they will remain quite dormant. Those which start into growth early will require potting off separately, and the others should remain in the cutting-pot until the following spring, when they can be potted off separately, and otherwise managed as advised for those raised from seed. The object in putting them in separate pots is to afford them greater facilities for acquiring strength, and consequently if they do not produce young growth until after the end of July or middle of August, it will be quite as well for them to remain undisturbed.

Gloxinias are always grown singly, and for the first year five-inch pots will be quite large enough, but in subsequent years either six or eight-inch pots may be employed. It is not desirable to use very large pots, for as the whole of the compost will be quite fresh when they are started in the spring, they will have an ample supply of nourishment. A moderate degree of atmospheric humidity is highly conducive to a vigorous growth, but as the flowers, owing to their waxy texture, are so soon injured by moisture, syringing overhead must be discontinued, or the plants must be removed to a drier atmosphere. The conservatory is the proper place for them when in bloom.

## GARDEN GUIDE FOR MARCH.

KITCHEN GARDEN.—Asparagus to be cut without forcing should be liberally top-dressed, and Globe artichokes be planted from strong suckers. Choose those that have plenty of roots, and remove the hard portions from the base, and trim away the lower leaves. The main crops may be sown, at the first opportunity, of all the leading vegetables, except beets, but it is advisable for all small holders to make successional sowings of small patches rather than large ones, of any kind of vegetable. Good breadths of peas and beans may be got in, with spinach between the rows of peas. Sowings of marrow and other main crop peas should be made for succession. Brussels sprouts, two or three sorts of Borecole, Chou de Milan, Enfield Market, and Atkin's Matchless, a small pinch of horn carrot, cauliflower, leek, and lettuce. Short top radish and small salads should be sown in small patches every fortnight. The first pans of celery may be pricked out towards the middle of the month, on a warm border which has not been dug, but covered with six inches of dung, with a sprinkling of light earth on the top. About the middle of the month sow the main crop of onions; these should have a piece of deeply-dug strong ground, enriched with manure, and the seed should be covered with a sprinkling of fine charred rubbish. Early planted potatoes appearing above ground should be gently earthed over to protect the young tops from the night frosts, and if there is any potato planting yet to do, the sooner it is accomplished the better, for experience has proved again and again that the heaviest and soundest crops are usually obtained by early planting. The best mode of planting is to trench them in with the spade, so that the ground has not to be trodden on, either immediately before or after their insertion; the use of the dibble is very objectionable. Asparagus should be planted towards the end of the month, and the best plantations are made by sowing the seed where it is to remain, and thinning to the required distance. Seakale may also be planted any time this month; the small "thongs" make the best beds.

FLOWER GARDEN.—Sow annuals in small quantities, to be succeeded by further sowings in April and May. Push a few choice sorts, both hardy and tender, forward in a propagating-house for a little early bloom. Sowings may also be made of perennial and annual flower-seeds, and even half hardy kinds, but the latter will of course not appear above ground until the temperature is sufficiently elevated for them. Old borders should be trenched up, and the perennials divided and replanted, and they will bloom much stronger in consequence this summer, besides having more neatness, and enabling the cultivator to adopt new arrangements. Any stock required for the flower garden should be obtained without delay, and especially of such things as Chrysanthemums, Delphiniums, Phloxes, etc. Rockeries, may now be planted with alpine and selected dwarf-growing annuals and perennials, and roses of choice sorts may be grafted on well-rooted stocks, the prunings of good sorts serving

as scions for the purpose. Auriculas are now growing in earnest, and must be protected from biting winds. Water liberally, as weather permits, and liquid manure once a week. Dahlias, keep moving, and strike cuttings as fast as you can get them, of the best sorts. This is the best month for amateurs to begin with them. Plant out such hardy plants as have been kept over winter in preservative pits; pot carnations, and place in a north aspect any that are kept in small pots for potting in April. Ranunculuses and anemones may still be planted, and seed of each may also be sown.

**FRUIT GARDEN.**—Fruit-trees in need of protection must be provided for at once, or the crop may be lost. Shelter them with netting or tiffany before the blooms expand, as the embryo fruit is frequently killed in the bud. Melons in bearing must have liberal fire-heat and plenty of water. Give full light, and train regularly. You cannot have good fruit without first a liberal surface of foliage. Sow for summer culture. Planting may still be performed, but every day's delay now increases the risk, for it is a positive injury to any deciduous tree.

**CONSERVATORY AND GREENHOUSE.**—Azaleas done blooming, trim up, and clean with tobacco-water or Gishurst compound if affected with scale. Repot those that have exhausted the soil in the old pots, and set them growing at once in a moist and gentle heat. Bulbs in pots, keep well watered, and shade as soon as the blooms are well coloured. Soot-water once a week will strengthen those throwing up. Cinerarias, Primulas, Genistas, Pelargoniums, and other things coming into flower, must have as much light as possible, and plenty of air on bright days; but cold, dry, frosty winds will do much mischief, unless their force is broken by means of matting, and a judicious management of the whole ventilation. See to the regular stopping of all plants that require it, especially of Pelargoniums; stake out specimen plants; give tepid water liberally to all fast-growing and blooming stock, with, at regular intervals, liquid manure. In the absence of guano or sheep's dung, soot-water is a nourishing stimulant for occasional use. Fuchsias should now be got into free growth, and have frequent syringings; Epacris and Camellias done flowering, should have a gentle heat to promote growth, and a vigilant look-out must be kept against vermin of all kinds, which now come in armies, and commit vast havoc if not checked in time. Keep up the supply of flowers from the abundance the season affords to choose from. Cytisuses are now very gay, and make a beautiful contrast to the colours of primulas, cinerarias, and hyacinths. Allow none to swell pods of seeds, unless seed is wanted, as it weakens the growth of new wood. After flowering, ill-shaped plants may be cut back and refreshed with a top-dressing. In the propagating and cutting frame, a good steady heat must now be kept up, for the increase of all kinds of bedding stock, and the raising of tender annuals, and to start Achimenes, Gesneras, and Gloxinias. Average temperature this month 50 degs. at night, 55 to 60 degs. by day; with a rise of 5 to 7 degs. with sun-heat.

**STOVE.**—Pines swelling their fruit should have plenty of manure  
March.

water; and fresh air must be admitted whenever the temperature rises to 85 degs., but the sudden admission of cold east winds will do much harm. The bottom-heat should not sink below 80 degs., or rise above 90 degs. When the syringe is used it must be rather to dew the plants than drench them; which soddens the soil, and causes an unsalutary check. The fruit swells badly-coloured in cloudy weather, so let them have all the light possible. Shift young stock, and mix half-inch bones with the loam, to keep it rough and open. Vines that have set, must be carefully thinned, not merely with a view to the production of good fruit, but for handsome bunches. Promote moisture in the atmosphere among peaches and vines, but never use the syringe to trees in blossom.



## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

CHOICE BEDDING PLANTS GROWN  
FOR THEIR FLOWERS.

AGERATUM.—Imperial Dwarf, Mexicanum.

CALCEOLARIAS. — Amplexicaulis, Golden Prince, Gaines's Yellow Gem, Gibsoni, Prince of Orange, Yellow Prince of Orange, Sparkler.

BEDDING DAHLIAS. — *Light*: Alba floribunda nana, Princess Mathilde. *Yellow*: Pluton, Golden Bedder, Golden Ball. *Scarlet*:

Beauté de Massifs, Scarlet Tom Thumb, Rising Sun. *Rose and Lilac*: La Bella, Rose Gem, Blonde. *Crimson and Purple*: Tom Thumb, Crimson Gem, Royal Purple, Zelinda.

GAZANIA.—Aurantiaea, Le Noir, Splendens.

HELIOTROPIUMS.—Madame Fillion, Etoile de Marseilles, Miss Nightingale, Mrs. Lewington, Jersey Beauty.

LANTANA.—Alba lutea grandiflora, Imperatrice Eugenie, Jean Bart, Madame Bouchardet, Ne Plus Ultra, Madame Rempler, Roi des Rouges.

LOBELIA ERINUS.—Brilliant, Cobalt Blue, Blue King, Distinction, Indigo Blue, Speciosa grandiflora, Trentham Blue, White Perfection, Pumila grandiflora, Pumila model, Pumila Celestial Blue.

PANSIES.—Claribel, Pride of Rufford, Imperial Blue, Ware's Cloth of Gold.

ZONATE PELARGONIUMS. — *Shades of Scarlet*: Crystal Palace Scarlet, Kate Anderson, Vesuvius, Waltham Seedling, Brilliantissima, Thomas Moore, Lucius, Rev. J. Dix, Star of Fire, Omega, Charley Casbon. *Shades of Crimson*: Stella, Crimson Nosegay, Baron Ricasoli, David Garriek, Wellington. *Shades of Rose and Purple*: Lord Palmerston, Purple Nosegay, Countess of Sefton, Duchess of Sutherland, Mrs. Laing, Lady Kirkland, Amy Hogg. *Shades of Pink*: Amy Robsart, Christine, Magenta Christine, Queen of Denmark, Wiltshire Lass. *Shades of Orange*: Indian Yellow, Hibberd's Orange Nosegay, Harkaway, Harry Hieover, Donald Beaton, Triomphe de Stella. *White*: Purity, White Perfection, White-flowered Ivy-leaf, Floribunda alba nana (Groom), Virgo Marie, White Wonder. *Shades of Salmon*: H. W. Longfellow, Gloire de St. Louis, Sensation, Salmon Queen, Excellent, Monsieur Barre.

PETUNIAS.—Alba Floribunda, Countess of Ellesmere, Crimson Bedder, Miss Earl, Queen Improved, Shrubland Rose, Imperial Purple, Spitfire.

PYRETHRUM.—Double White.

SALVIA.—Fulgens, patens, splendens.

TROPÆOLUM.—Advancer, Compactum coccineum, Compactum luteum, Yellow Dwarf, Lustrous, the Moor, Luteum Improved, Mrs. Treadwell.



**VERBENAS.**—Ariosta Improved, puce; Crimson King, brilliant scarlet; Celestial Blue, blue; Blondin, rose: Spot, pink; Purple King, purple; Le Grande Boule de Neige, white; Lord Raglan, salmon red; Laura, light rose-pink; Maonetti, rose purple; Nemesis, crimson: Sir R. Napier, crimson scarlet; Sportsman, purplish rose; Venosa, mauve-purple, hardy.

**VIOLAS.**—Enchantress, slaty blue; Cornuta alba, white; Perfection, cobalt blue; Lutea major, golden yellow; Magnificent deep purple. All the violas must have a deep, rich soil, and the seed-pods must be regularly removed, or they will not flower well throughout the summer.

### CHOICE BEDDING PLANTS GROWN FOR THEIR LEAVES.

**PLANTS WITH GOLDEN LEAFAGE.**—*Bronze Zonal Pelargoniums*: Harold, Waltham Bronze, the Moor, Crown Prince, Sybil, Rev. Mr. Radelyffe, Mrs. Lewis Loyd, Black Prince, Countess of Kellie, Duke of Edinburgh, Edward George Henderson, Mulberry Zone, Kentish Hero. *Golden-leaved Pelargoniums*: Cloth of Gold, Crystal Palace Gem, Golden Banner, Golden Chain, Golden Emperor, Golden Fleece, Jason, Little Golden Christine. *Gold Zonal Pelargoniums*: Miss Batters, Maebeth, Amy Richards, Mrs. Pollock, Sophia Dumaresque, Louisa Smith, Lady Cullum. *Miscellaneous*: Abutilon Thomsoni, Pyrethrum Golden Feather, Fuchsia Regalis, F. Golden Fleece, Chrysanthemum Sensation, Tropæolum Ochroleucum.

**PLANTS WITH SILVERY AND FROSTED LEAFAGE.**—*Variegated Geraniums*: Day-break, Flower of the Day, Flower of Spring, L'Elégante, Princess Alexandra, Queen of Queens, Snowdrop. *Miscellaneous*: Achyrocline Saundersoni, Achillea elavendæ, Alyssum variegatum, A. saxatile fol. var., Antennaria tomentosa, Arabis alpina argentea, Artemisia Stelleriana, Bambusa Fortunei variegata, Centaurea argentea plumosa, C. ragusina, C. ragusina compacta, C. gymnocarpa, Cerastium tomentosum, Cineraria acanthifolia, C. maritima, Dactylis glomerata elegantissima, Eranthis radicans variegata, Gnaphalium lanatum, G. tomentosum, Polemonium œruleum variegatum, Salvia argentea, Echeveria secunda glauca, E. glauca metallica, Stachys lanata, Thymus citratus fol. var., Veronica Andersoni variegata, V. incana.

**PLANTS WITH CRIMSON AND BRONZE LEAFAGE.**—*Alternanthera magnifica*, A. amena, A. paronychoides, Amaranthus elegantissimus, A. melancholicus ruber, A. salicifolius, A. tricolor, Iresine Herbsteri, I. Lindeni, Coleus Verschaffelti, Perilla Nankinensis, Echeveria metallica, E. racemosa, E. sanguinea.

### HORTICULTURAL AFFAIRS.

**ROYAL HORTICULTURAL SOCIETY.**—The annual general meeting of the Society was held on February 11, in the Council Room at South Kensington. The chairman caused to be read a communication received from Her Majesty's Commissioners of the Exhibition of 1851, in which the Commissioners offered to take over the management of the gardens at South Kensington, pay all rates and taxes, and make other financial arrangements, on the condition that the visitors to the exhibition have free access to the gardens. An animated discussion ensued on the motion for the adoption of the report, and the action of the council of the Royal Horticultural Society and the commissioners was severely criticised. The discussion was ultimately adjourned until the 18th, when after a spirited discussion, a resolution moved by Sir Alfred Slade, that the report be not adopted, was carried by a majority of seventy-two, and the council was called upon to resign by some of the Fellows present.

**ROYAL HORTICULTURAL SOCIETY, FLORAL COMMITTEE, Feb. 12.**—The meeting on the above date was undoubtedly one of the best February meetings ever held. The prizes for Chinese Primulas were warmly contested, and there was a capital display of these attractive flowers, as well as of the beautiful Persian Cyclamens and Orchids. Novelties were scarce, as is usual at meetings held at this season of the year. The first prize for a collection of six Primulas, was awarded

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to Mr. Goddard, gardener to H. Little, Esq., Cambridge Park, Twickenham, who presented a group of large and exceedingly fresh and well-flowered specimens of single red, white, and carmine varieties. Mr. Farrow, gardener to G. Batters, Esq., Brigadier Hill House, Enfield, was second; Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth; and Messrs. Dobson and Son, Isleworth, also exhibited fine collections, but the plants were not so fully in bloom as those from other exhibitors. Mr. W. Paul, Waltham Cross, Mr. B. S. Williams, and Mr. Kingsbury, Beauvois Valley Nursery, Southampton, also exhibited collections which included striped and other varieties. Cyclamens were exhibited by Mr. Goddard and Mr. James, the collections consisting of magnificent specimens bearing flowers large in size and of the finest form and colour. Camellias were also well represented by Mr. B. S. Williams, Mr. W. Paul, and Mr. Green of Congleton. Messrs. J. Veitch and Sons, W. M. Bull, and Mr. Williams exhibited very large and splendid collections of Orchids, Ferns, Palms, and other ornamental plants. Amongst the Orchids were large groups of *Lycaste Skinneri*, *Odontoglossum gloriosum*, and *O. crispum*, and fine specimens of the brilliantly-coloured *Ada aurantiaca* and *Saccolabium Catbarti*, *Lycaste cruenta*, and other well-known species. Messrs. J. Veitch and Sons also presented a group of Primulas, and several plants of a dwarf-growing and free-flowering *Rhododendron* under the name of Early Gem. The flowers are of medium size and of a deep rosy lilac. It appears to bloom naturally very early in the season, for the buds of plants recently lifted from the open ground were just on the point of bursting. Prizes were offered for Dessert Pears and Apples, but the only exhibitor of Pears was Mr. Miles, gardener, Wycombe Abbey, who sent admirable examples of Beurré Rance, Knight's Monarch, and Prince Albert. On the other hand, the competition in the class for Apples was rather spirited. The first prize went to Mr. Rutland, gardener to the Duke of Richmond, Goodwood, who had examples of Cockle Pippin, Ribston Pippin, and Nonpareil Russet. The second prize was awarded to Mr. Gardiner, Lower Eatington Park, Stratford-on-Avon, who had excellent dishes of fruit. M. Dominio Piccirillo, 43, Wigmore Street, exhibited Chestnuts, Garlic, Giant Rocca Onions, from Naples, and flowers of the Violet and petals of the Rose and Orange covered with sugar for dessert.

**THE ORANGE IN SICILY.**—At a recent meeting of the Berlin Geographical Society, Herr Langenbach read a paper "On the Culture of the Orange in Sicily." The Agrumæ is first met with in latitude 44°, while the Sweet Orange does not grow plentifully above 41°. The lecturer stated that there are seven different species of Sicilian Oranges, which are subdivided into no less than thirty-two different kinds. It is probable that the Arabs first introduced this fruit from Southern Asia; moreover, the *Citrus medica*, which appears to be the maternal fruit, is still to be found wild in parts of India. Sicily is peculiarly suited to the growth of the Orange, abounding, as it does, in clay and chalky soils, which are the most favourable to the tree. It has, nevertheless, much need of artificial irrigation to enable it to mature properly. Although Sicily was once the granary of Italy, it now produces only one-ninth of the cereal produce derived from the entire kingdom. But with regard to the Agrumæ, Sicily is extremely rich, deriving, as it does from that source, a gross produce of 200,000,000*l*. The main misfortune of the country consists in the crowded state of its towns, and the sparseness of its rural population.

**THE NEW WHITE HYBRID PERPETUAL ROSE, MADAME LACHARME.**—Mr. Bennett, of the Manor Farm Nursery, Stapleford, Wilton, Wilts, writes, in reference to this rose:—"I wish to draw particular attention to Mons. Lacharme's white rose, *Madame Lacharme*, which I saw exhibited at the Universal Exhibition at Lyons, on July 6, 1872 (as shown pure white), where it was deservedly awarded a first prize. I also saw a large number of plants in full bloom in equally good form at Mons. Lacharme's; it appears even a stronger grower than its parent, has very large handsome Jules Margottin foliage and wood; the blooms when fully expanded are about four inches and a-half in diameter. It is certain to be of a good constitution, as it withstood the severe frost of last winter triumphantly. Should the English climate suit it, it cannot fail to have a career second to no rose yet introduced."

## TO CORRESPONDENTS.

**SOLANUMS.**—*H. H. C. P.*—The variety is still the best. Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway.

*L. W.*—The tree mentioned cannot be propagated in the manner stated.

**COOL HOUSE ORCHIDS.**—*J. J.*—You will find a list of the most useful orchids that will thrive in a comparatively low temperature with instructions for their management, in the *FLORAL WORLD* for June, 1868, which we believe may be had from the publisher at the usual price and an additional stamp for postage.

*M. A. H.*—We regret our inability to give the address, but our esteemed correspondent assures us that he cannot spare the time to receive visitors.

*Anxious.*—The *Wisteria* may be planted at once. It requires a moderately rich soil, and will do well in ordinary garden soil, provided it is enriched with a dressing of manure, and dug up rather deeply. The *Hydrangea* would do exceedingly well for the purpose mentioned. Put the *Forget-me-nots* about six inches apart each way.

*C. C., Queenstown.*—We suppose the stove is outside the house; if inside, the fumes arising from the fire would be quite sufficient to prevent the plants thriving. If the fire is outside, we cannot say what can be the cause of the unhealthy state of the plants, excepting that it is possible they have not received the proper treatment. A bed of leaves properly made up should retain its heat for a considerable period; the bed of leaves should not be less than three feet in depth, but it would retain the heat better if it was four or five feet in depth. The house may be fumigated with a common garden flower-pot and a pair of bellows, if you have no fumigator: first of all obtain an eight-inch pot and make a hole in its side near the bottom, and a supply of tobacco-paper or tobacco; in case the paper is used, it must be torn up into small pieces and made rather damp by sprinkling it with water; it simply requires to be made damp enough to prevent its bursting into a flame; the evening is the best time for fumigating the house. In commencing, place a few red-hot cinders in the pot, over these put a little dry brown paper, and when it is fairly alight, a handful of dry tobacco-paper; when this has burst into a flame, as it soon will do by blowing it gently, partly fill the pot with the damp-tobacco-paper, this must be done by shaking on the burning paper lightly, for if thrown upon it in a careless manner it will not burn so freely as could be wished. This can be done in the open air, and after it has been blown steadily for a few minutes it may be placed in the house without further attention unless it is a rather large one, in that case it will be necessary to add fresh material and blow for a short time. In any case it will be necessary to watch it from the outside, and if it bursts into a flame it must be stirred up and a little new material added, unless the house is full of smoke, and then it may be removed outside and extinguished with a little water.

**GALVANIZED WIRE.**—*An Old Subscriber.*—A considerable diversity of opinion exists upon this point. It should be painted and care taken not to tie it too tightly.

**ASPARAGUS BED.**—*Ignoramus.*—After the weeds begin to grow freely, remove them with the hand until after you have finished cutting, when you can use a small fork without injury, if carefully handled. You ought not to cut any from the new bed before the third year. You might catch and destroy thousands of slugs, with which you say your garden is so much affected, by laying a few cabbage or lettuce leaves in their favourite haunts, and by searching them occasionally with the lantern on mild damp evenings you will be able to pick them up wholesale.

**SHOW GERANIUMS.**—*Amateur.*—The geraniums to which you refer are probably suffering from having been kept too wet through the winter. Possibly they are in soil of too close a nature, and deficient in drainage; either of these causes is sufficient to account for the brown spots on the leaves of your plants. It is too late now to do much to them beyond watering with more care, and giving plenty of air. If the stuff in which they are potted is wet and sour, and the plants have very few roots, take them out of the pots, reduce the ball, and repot in clean pots with plenty of drainage, and use fibry loam, leaf-mould, and plenty of silver sand.

**HYACINTHS DONE FLOWERING.**—*W. B.*—Plant your hyacinths out in a warm and dry border and place a frame over them, to mature the bulbs. Take up after the foliage is decayed.

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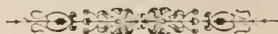


**TOWN CONSERVATORY**.—*F. R.*—There is one most important consideration which should, we think, determine conclusively whether a steep or a low roof should be adopted. If built nearly flat, cats will run up and down the glass as easily as on a gravel walk, and now and then one will jump on the roof and go through, and immediately commence frantically leaping up and smashing the glass to get out again. For this reason, which could only occur to one who has paid for experience, the roof of every plant-house in a town garden should be pitched at a sharp angle.

**JAPANESE CHRYSANTHEMUMS.**—*W. J. R.*—As you require them for home decoration, the culture is exceedingly simple. Strike the cuttings soon in a little warmth, either singly or several in each pot, in much the same manner as you would verbenas, or other soft-wooded stuff. After they are rooted, pot off singly into small pots, and stop when established. Immediately the roots begin to run in the new soil, remove to a cold frame, and gradually increase the air until the lights can be taken off altogether. A good time for the first stopping would be a week after the plants have been shifted into the cold frame. When the pots are nicely filled with roots, but before the plants become pot-bound, shift into five-inch pots, stop again when established, and, as soon as they are growing freely, shift into nine-inch pots. This will be the last shift required; and, to save trouble in watering, plunge the pots in cocoa-nut fibre refuse, or partly decayed leaf-mould or coal-ashes. Stand each pot on a piece of slate or brick to prevent the worms getting into it. Tie out the shoots as they require it, to prevent their getting broken. A simpler way still would be to transfer three plants from the sixties into the nine-inch pots, and stop about twice during the season. Let all the stopping be done when the shoots are soft and growing freely, as they break badly if left until they become hard. Thin out the huds, and leave one to each growing point. You might have a fine display by merely potting as we have directed, and tying the plant to a stout stake. In the autumn each plant will produce eight or ten trusses of flower-buds, which should be thinned down to one bud each. It is essential that the plants are far enough apart during the summer, or they will be drawn up, and lose the lower part of the foliage. Good turfy loam, with a liberal addition of decayed manure, is the best compost for growing them in. They must not, at any period of their growth, be allowed to suffer for want of water; give them weak manure-water when the pots of the last shift are full of roots. Remove to the conservatory as soon as the huds begin to show colour, and ventilate freely. No stopping must be done after the middle of July.

**WIREWORMS IN POTS.**—*Lady Subscriber.*—Tohacco-water in limited quantities is not injurious to the roots of most plants, but it is by no means desirable to water them with it. Lime-water will readily remove the ordinary worms from pots; but to kill wireworms you must use salt, or some chemical stuff equally powerful, which would have a like effect upon the plants. If there really are wireworms amongst the soil in which your plants are growing, the most effectual way will be to turn the plants out of the pots, and search for the worms. If you are troubled with the ordinary earth-worm only, water with lime-water. The strength is of no particular consequence, so long as the water is perfectly clear when used. Lime-water is made by simply putting a peck or so of lime in a vessel holding several gallons of water, and then filling it up with water, and allowing it to stand a day or so before it is used.

**SUMMER PRUNING OF GRAPE VINES.**—*Vitis.*—If the vines are strong and well ripened, your best plan will be to disbud a few of the side-shoots when about two inches in length, if the eyes are too close together. Leave them about a foot apart on each side of the vine. The side-shoots should be stopped when they are about eighteen inches long, and the first crop of laterals which break from the points of these stopped at the first joint, and kept to that. If these are kept regularly stopped, they will materially strengthen the main rod. If you think the vines are strong enough to bear, let them carry three or four bunches, and stop at one joint beyond the bunch. It is these shoots or branches that must be pruned to two eyes in the winter. Prune and top-dress at once; both operations can be done at the same time. The roots should not be disturbed too much unless they are in bad order.









## VARIEGATED KALES.

(With Coloured Illustration of Stuart and Mein's Variegated Kales.)



COMPARATIVELY few of our readers, we imagine, are familiar with the beautiful plants, leaves of which are represented in the accompanying plate. They are cheap, and we cannot fairly say that they are choice; but as decorative plants they are peculiarly useful, and by those who understand them they are highly valued, for they take a place in the flower garden that no other plants can fill, and those who are disposed to look down upon them (as we confess we have hitherto ourselves been), will perhaps find in the few remarks we have to offer reasons for regarding them with some degree of respect.

In all seed catalogues there are offers of variegated kales, and in the large catalogues there are described half-a-dozen or more sorts. It is known to a few that when circumstances are favourable to the employment of these kales as bedding plants, they are remarkably effective, but the general opinion is against them; and it is not to be wondered at, for cabbages do not, at first thought of the matter, appear to have any claims upon our attention as decorative plants. However, it is a matter of fact that in a few gardens in Scotland, and notably in that of Miss Hope, at Wardie Lodge, a charming effect is produced in the winter season by planting variegated kales in the beds that were occupied during summer with the ordinary bedders. In common with many other cultivators who are blessed with inquiring minds, we have again and again tried these kales, in hope of obtaining a good out-door display during the depth of winter by their aid, and on every occasion our failure has been complete. The strong soil and the warm climate of Stoke Newington have made gaunt, coarse things of them, or, at all events, if they proved to be handsome, as they generally did while standing in the kitchen garden, they changed suddenly to gawky things the instant they were transferred to the flower garden.

Finding that those who took to the kales in earnest made no sign of repentance, we obtained samples of seeds from several quarters, and made another attempt, and *succeeded*. Instead of sowing the seeds with the usual eating cabbages and broccolis, in March, we waited until April, and then sowed samples on the shady side of a large bank of brick rubbish and garden sweepings, the slope being slightly levelled to make a seed bed. Thus we began on a starving system, and the practice proved to be right. When the plants were large enough to handle, we planted them rather thick in the poorest plot of ground we could find, though in the end it proved still too good for them. All the sorts grew too strong to satisfy us, but they were a really wonderful lot, and we might have made a fine parterre display with them. The way to use them in the flower garden is to plant them in the beds so deep that the

densely-frilled and richly-coloured centres alone remain above ground. Then they make masses of colour that are truly attractive on a sunny day in winter, though we must confess that on dull days they are not attractive. As for that, it may be observed particularly that crocuses are not worth looking at during "dirty" weather, so no wonder if the crimson cabbages are not quite so gay when hidden by fog as when illuminated by sunshine.

Having settled the matter thus far, we wrote to Messrs. Stuart and Mein, of Kelso, who are famous for their fine strains of fancy borecoles, and obtained a few samples. These proved to be several degrees better than our own samples grown on poor soil in the coldest spot we could find for them, and we conclude therefore that the climate of Scotland is better adapted than that of the south of England, to bring out the decorative qualities of the plants. From the samples received we have selected four as the most striking, and the best for both bedding and garnishing, and possibly to help out in winter decorations within doors. The large leaves in the plate represent small varieties of cabbage, characterized respectively by deep crimson and delicate cream-coloured leaves. The finely-frilled leaves, of a rich purplish crimson and clear cream colour, are examples of Ragged Jack, a celebrated kitchen-garden vegetable in Scotland, in this case transformed, as if for the celebration of Christmas, and prepared to keep the best of company. Besides those four beautiful varieties, we received from Messrs. Stuart and Mein a sample of a proliferous variegated kale, which produces crimson and purple frills on the midrib of every leaf, and a sample of variegated Scotch kale, the leaves of which present a variety of colours, and are most elegantly frilled and edged with green. Many of our readers, who cultivate poor soils in bleak situations, will, we hope, give these kales a trial, for ours is a long winter, and if we can increase our sunshine by growing some of it, we may expect to be the happier for the experiment.

S. H.

## THE CULTIVATION OF BEANS.



THE Garden Bean is one of the most nourishing vegetables known, and although it does not enjoy universal favour, for many people regard it as both vulgar and uneatable, this is compensated by the enthusiasm of those who proudly rank themselves amongst eaters of "bean feasts." It is unfortunate for this noble esculent—for such, with your permission, we regard it—that it is often served in a vulgar manner, and the most constant lover of beans will admit that when allowed to grow old, and then badly cooked and served with coarse bacon, the bean is not a thing to be desired, except in case of a famine, or to afford a fat pig a change of diet, and an experiment in cannibalism. Let us do justice to the bean, that we may see it on the table as green as grass, tender, and slightly meally, without being in the least old, and accompanied with real parsley-butter as



green as the beans, and with the true flavour of the parsley preserved to the utmost.

The bean requires a good soil, and it is an extremely exhausting crop, and therefore should be prepared for, or at least followed by, liberal manuring, for it takes out of the soil tremendous quantities of potash, phosphorus, lime, and sulphur. The seed is sown from November to the end of June, and consequently soil and situation must be selected to suit the several sowings. Those sown to stand the winter should be on a somewhat light and dry soil, and in a sheltered situation. Those sown in February and March will do better on a deep heavy soil, as they will be in bearing in the hottest part of the summer. In any case, the ground must be well dug, and sufficiently manured, and although shelter will assist the autumn and winter-sown crops, beans will never thrive under trees, or in any half-stifling spot, where air and light are deficient.

It is a waste of seed, of ground, and of quality of produce, to sow the seed too thickly. It is usual to sow in double rows, thus—

<i>a</i>	*	*	*	*	*
<i>b</i>		*	*	*	*

The small-growing sorts, such as the *Fan*, may be in double rows two feet apart, and the drills may be two-and-a-half inches wide from *a* to *b*, and quite two inches deep. The large-growing sorts, such as *Windsor* and *Longpod*, may also be in double rows, but the breadth from *a* to *b* must be four inches, the distance from double row to double row must be three feet, and the seed must be set full three inches deep. Of late years we have practised sowing in single rows, as we grow for summer use only the largest varieties of Windsor bean, and we are satisfied that the extra space afforded the plants is amply repaid in the increased abundance and fine quality of the produce. As to distance apart, we never could get our men to sow thin enough, and so in our early morning walks in spring we go through the rows and pull half or two-thirds of the plants out, and leave them on the ground to perish. The amateur who manages things in his own way entirely, will find that the largest sorts of beans will pay well in single rows, three feet apart, and the plants eighteen inches asunder in the rows. If they come up too thick it will always pay to transplant them; but they must be carefully lifted with a trowel when they have made three or four rough leaves, and the work should be done in dull or showery weather.

The production and quality of beans are greatly enhanced by a proper course of culture, and the sowing of the seed is to be regarded as only one step towards success. When the plants are two inches high, the ground between them should be sown with gypsum and then hoed over, care being taken to avoid injuring the young plants. About a bushel per rood of gypsum will suffice, and its effects will be almost magical, more especially on ground that was previously well prepared by deep digging and manuring. It is not a good practice to give water to the growing plants, but in the case of long-continued drought it might be wise to open narrow V

shaped trenches between the rows and fill them with water every evening for a week, or even a fortnight, at the time when the plants are advancing into flower, and then to close the trench and give no more. As the flowers open, the black-fly will probably appear. Strange to say, although this fly sucks the juices of the plant, it is not often injurious to an extent to cause anxiety, although, of course, we prefer to be altogether without it. As the fly usually affects the top of the plant, because we may suppose of the tenderness of the tissues there, it is a good practice to pinch out the tops and burn them. It is usual to pinch out the tops as soon as the plants are fairly in flower and the young beans are visible at the bottom; but, if there is no fly present, the pinching is not necessary, and is even objectionable when rudely performed, as it often is. The object of the topping is to prevent the production of an extravagant number of beans of comparatively poor quality, which may be expected if all the flowers are allowed to open and fructify. The books say, "two or three inches of stem should be broken off;" but it would be better to say, pinch out the tops as far down as they can be severed with the thumb nail, as soon as pods are seen emerging from the lowest of the flowers. This will take off about an inch and a half, and the plants will remain vigorous. Severe topping lowers their vigour, for the leaves are their lungs, and the "hacking" process that all Cockneys and rustics believe in, is always guarded against by the prudent gardener.

If beans are required at the earliest possible moment, and the season for early sowing out-of-doors has been lost, we must have the aid of glass, and sow for transplanting. A gentle hotbed will start the seed nicely, but a strong heat will produce weak plants scarcely worth putting out. Sow on grass turves, laid grass-side downwards, or in boxes or pots, taking care to let the young plants have plenty of light and air, to keep them stubby from the first. The roughest of contrivances for shelter will suffice to push the seed forward and help the plants until the time comes for putting out. Select for them a warm south border; get them out as early as possible, choosing mild, showery weather for the transplanting, and plant them in shallow trenches, filling in round their roots with old rotten manure in a powdery state, or old leaf-mould, or whatever else of a similar nature may be at hand, to coax the tender roots into action speedily.

The green plant is a first-rate fodder for milch kine, and therefore if an extra breadth of beans is grown, they may be drawn as needed to amuse the cows, and give the grass land a better chance for haymaking.

On several occasions we have had a second crop of beans from the same plants, having encouraged the suckers to rise by cutting down the stems that bore the first crop. It is only in a long, hot, showery season that the suckers rise sufficiently strong to produce anything, and then, so far as our experience enables us to say, they make but a poor return for the ground they occupy. It is well, however, for the cultivator to know all that may be done, and it is a

fact that in a favourable season a second crop may be taken from the same plants.

As remarked above, the bean is rich in phosphates and alkalies, and hence is an exhaustive crop. There is nothing better in the way of manure than good stable dung, half-rotten, and the ground should be deeply broken up; but guano may be employed with advantage, and the best mode of procedure is to sprinkle a little at the bottom and on the sides of every trench as the digging proceeds. The gypsum or plaster of Paris recommended above should be spread on the surface and hoed in amongst the young plants. In one thousand pounds weight of beans, which we may reckon as the produce of half an acre of ground, there will be of mineral matters; phosphoric acid, 10 lbs.; lime, 3 lbs.; magnesia, 2 lbs.; potash, 14 lbs.: common salt,  $\frac{1}{2}$  lb. It follows, therefore, that a heavy loam or clay land, rich in alkalies and phosphates, is the proper soil for beans when a large and fine production is required; but almost any soil may be rendered suitable by judicious manuring, and, as a rule, the best special manure available is phospho-guano.

In selecting sorts it is well to remember that there are some very bad ones in the market. The *Red Seeded* and the *Red Flowered* are about the worst that we are acquainted with, and we caution the amateur against the latter in particular, because it is occasionally advertised as an ornamental plant, producing an abundance of the most delicious beans. The truth is, it is one of the ugliest, least productive, and obnoxious-flavoured vegetables that ever found its way into an honest man's garden. For early production, *Dwarf Fan* and *Mazagan* are the best, and, being small growers, they may be sown in rows, closer together than other varieties. For mere production, the *Longpods* are the most profitable, and answer admirably where beans are grown for sale, the true *Johnson's Wonderful Longpod* being of excellent quality and tremendously productive. Having tried all the sorts many times, we have adopted two, and never grow any others. These are: *Early Mazagan*, to sow in November, January, and June, for early crops of delicate beans; and *Green Windsor*, to sow in January, February, and March, for supplies of the handsomest and best-flavoured beans obtainable. We give the last-named plenty of room, and put the rows four feet asunder, and never fail to have a long-continued and abundant supply of the finest beans in the world.

S. H.

THE STRUGGLE FOR LIFE AMONG PLANTS.—Each plant endeavours, almost consciously, to destroy his neighbour, to occupy his ground, to feed upon his nutriment, to devour his substance. There are armies and invasions of grasses, barbarian inroads and extirpations. Every inch of ground is contested by the weeds; the forest is a struggle for precedence; the wars of the roses is a perennial feud. The serenest landscape, the stillest woodland, are the mortal arena of vegetable and animal conflict. The last number of the *Popular Science Review* contains an interesting paper on "The Battle of Life among Plants." Experiments are described where numbers of plants were placed together in the same bed, and certain plants, after a few years, alone remained, the others having succumbed. One of the most persistent was found to be the couch grass; and in general plants with a large root area showed most vitality in all soils.

April.

## FRUIT TREES FOR VILLA GARDENS.

## I.—THE APPLE.

BY JOHN SCOTT,

Merriott Nurseries, Crewkerne, Somerset.



IN my "Orchardist" the lists of hardy fruits are so long, and the directions for planting, training, pruning, etc., etc., so various, that the owner of a small garden may confess without shame that he would be glad of some briefer and simpler advice on the production of useful fruits. In my own behalf, I must say that my book includes every detail of fruit production, and therefore the owner of a small garden is as fully provided for as the owner of a great domain, or the speculator who intends to grow fruit on a large scale for market. It should, however, be in my power to contribute to the FLORAL WORLD an article calculated to promote the production of fruit in the villa garden, and I begin with the apple, because it is indispensable and is the easiest of all fruits to grow. That we do not grow enough, is evident by our imports of apples from America and the continent of Europe; that we might grow all we want, and even spare some for export, any one will believe who has seen my plantations, or who has in the season made notes in any good private garden where the apple has had justice done it. As a rule, this hardy, useful, and elegant fruit is most unjustly treated, and takes revenge on its owner by becoming sterile, cankered, defiled with American blight, or clothed with injurious lichen. The best preventative for these is high cultivation.

It may appear to some readers that this is a bad time to advise on the subject; but I think it the best time, for those who contemplate planting next autumn have the summer before them for getting the land ready for early planting: or to put the case another way, they are in a position, as regards time, to do the thing properly, and the success of a plantation of fruit trees depends very much indeed on the way in which the first step was taken. Now, I shall suppose you have a piece of grass land on which you intend to plant apples. It is time to begin *now*, and my way of beginning would be to trench the ground two spits deep, and take off a crop of potatoes. A good sound loam would do this well and be ready for the apple trees in October, but a poor soil would require to be aided with a good coat of manure, laid between the top and bottom spit as the work went on, the grass spit being of course put at the bottom of the trenches. I would order my trees in September at latest, and I would plant in October, remembering what our editor has told us, that trees planted in autumn grow without asking, but trees planted in spring want persuading and coaxing.

As to the selection of trees, I should for myself prefer bush or pyramid trees, grafted on the proper Paradise Stock; but if I wanted a few large trees for embellishing a grass enclosure, or to improve a shrubbery border, Standards on the Crab Stock would be preferable.



There are several bad stocks in use in nurseries, and the sorts grafted on them rarely do justice to their names. The true Paradise is the proper thing; it is sufficiently vigorous, it makes a great lot of surface roots, and promotes a short, hard growth of wood, and abundant fruitfulness. Having years ago secured the real Paradise stock, I have taken care to employ it for pyramid and bush apples exclusively, and the result is that I have grafted and sold hundreds of thousands of apple trees adapted for miniature orchards. As to the selection of sorts, my advice to the villa gardener is to give the preference to long-keeping sorts of first-class quality. Selected lists of such will, from time to time, be given in the FLORAL WORLD. It is an easy matter to keep a store of apples, and after the turn of the new year they begin to be valuable. Of course, a few early sorts should be included in a selection, but we can always buy apples in autumn pretty cheap, and the wise planter will therefore take particular care to plant sorts that are noted for long keeping.

There are three forms of apple trees adapted for villa gardens beside the Standard, of which, on the present occasion, I do not intend to speak. Of these three forms, I cannot do better than repeat in part, what I have said elsewhere, to put the case before the reader concisely.

ESPALIERS on Crab Stocks is an old mode of training, used to separate the walks and borders from the other portions of the garden; when neatly executed, this mode is both useful and ornamental, and for heavy fruits is better than either Standards or Pyramids, as the fruit is not so easily blown from the trees. The mode of forming them is, to procure a young tree, with three or five branches, taking care to get a tree with the central shoot the strongest; the side-shoots are to be trained in their full length, and if more than one pair, they ought to be trained from nine to twelve inches apart, and horizontally; the side-branches are to be treated exactly as if each were a single cordon, and the central shoot cut down to fifteen inches, so as to make it break either three or five of its eyes—the former if it is weak, the latter if strong. This must be annually repeated until the trees have attained the necessary height—five or six feet.

PYRAMIDS, on various stocks, are all formed pretty much the same way. I shall, therefore, only treat of them upon the Paradise Stock, which has a wonderful power of dwarfing the trees grafted upon it. Of stocks called Paradise there are several kinds—the *true or Scott's Pommier de Paradis*, the *Doucin*, the *Burr Knott*, and the *Stibbert*. I have trees growing upon all these kinds of stocks, but all, excepting the *true Paradise*, are unfit for a real *Miniature Orchard*. Scott's *Pommier de Paradis* is really wonderful in its dwarfing character; trees worked upon it, not more than twelve to eighteen inches high, bear fine crops. The fruit is generally larger than off the other stocks, with a peculiar aroma, somewhat like the fruit of the *Pommier de Paradis* itself.

An orchard planted with trees upon this stock is exceedingly interesting, and may at first be planted eighteen inches apart: at this distance they may be grown for five or six years, after which

each alternate tree may be removed and replanted, thus making the original plantation twice its former size; they will then stand at three feet apart. The same operation may be repeated in ten or twelve years, when the original plantation will be increased to four times its former size, having the trees six feet apart—that is, if one-fourth of an acre was commenced with, it would take one acre to contain all the trees after ten or twelve years.

DWARF BUSH formed trees, either on the surface-rooting Crabs, *Ducun*, or *Pommier de Paradis*, are easily formed, and for small gardens are much to be preferred to any other form, as they are easily managed, bear abundantly, and the fruit are not subject to be blown down by storms. The trees may be planted exactly as we plant Gooseberry or Currant bushes, from one and a half to six feet apart, according to the kind of stock upon which they are worked. Keep the young shoots thin and regular, stopping them once in the season, say in June, and regulate them by the knife in winter. I am averse to too much summer pruning, as tending to check the flow of the sap too much, and thus causing the tree cells to be over-gorged with juice, which they have no means of evaporating. I have often received trees that have undergone frequent pinching during the summer, and have uniformly found them hide-bound and checked in their health—so much so, that no after care could cure them or ever make them healthy trees. I refer especially to trees sent out by a *great advocate* of repeated summer pinching; they now stand in my nursery, a monument of the man's physiological acumen, and never will be anything but scrubs. Unless great care be taken to avoid depriving a tree too much of its leaves, its health, and the quality and size of the fruit, will be deteriorated; for if we consider the great use of the leaves, we should hesitate to deprive a tree too much of them by repeated summer pinching, and take care to keep up a just equilibrium between the roots and branches. If you wish to keep your trees healthy, pray study the extending system a little. Without leaves you cannot have roots, and without roots your trees will perish. In my next I hope to give a well selected list of the best and most profitable sorts of apples to grow in the Villa Garden.

## FLOWER BASKETS FOR THE DRAWING-ROOM.



I AM induced to say a few words in favour of the above for three reasons: first they look so charming if properly filled and arranged, secondly because they last so long in bloom, and thirdly because they cost but little money, a reason by no means to be despised. I have three at present fitted up in the drawing-room; one is high and forms a centre-piece, and the other two are not so high, and form a pair right and left of the centre or taller one, which in the evening is taken into the dining-room and forms a pretty stand for the centre of the table. The advantage of stands of growing flowers over those

of cut ones, is that with cut flowers of course they will take some time to arrange, and will not last fresh more at the most than a few days, whereas the growing ones only require the first arranging, and will last for a wonderfully long time; those I have in use at present have been fitted up more than a month, and are only now beginning to look the least bit shabby. I shall describe those I have at present, as they may form a guide to be improved upon for any who may think of adopting this style of decoration.

The centre stand is of the following shape:—the bottom is a round basket about six inches high and a foot across, round the edge of which is an open plait of basket-work, out of this rise three rods about two feet high, which are tied in at about six inches from the top and form a kind of tripod; on the top of this, resting on the rods, is a small basket the same shape as the bottom, but not more than six inches across; the whole of the wicker work is done with brown varnish, which preserves it; if it were left white it would soon become soiled. The rods or tripod being so high, afford room to see through them, which is a great matter when it is to be used on the dinner-table. The other two stands are of a similar shape to the above, only they are not so large at the base nor nearly so high. The centre stand is filled as follows:—in the top a mauve-coloured cyclamen, round which are four tulips of a pinky mauve and white striped. In the centre of the bottom is a nice plant of *Cyperus alternifolius*, next four hyacinths, two pink and two flesh-coloured, and between these four tulips the same colour as those at the top. The two smaller stands I have made to match. In the top of each a white cyclamen, and in the bottom four pink tulips and four plants of *Echeveria secunda* placed alternately.

I shall now explain how the roots of the plants and soil should be managed, as if this is not done properly the soil will keep running through the baskets, and, moreover, clay to be seen at the roots of the flowers would quite spoil the effect. The baskets should first be lined with moss, such as grows on the trunks of trees and old walls, next place some broken crocks, and then fill in with light soil and plant your flowers in it (in full bloom of course). When you have done this take some more moss of the same kind with which you have lined the basket, only pick out the freshest and nicest-looking pieces, and with these cover the soil quite over, so as to give the effect of the flowers growing in the moss. Water whenever you feel the soil become dry, but do not let the water fall on the blooms. It is best to lift the baskets out on some balcony or on the floor of the conservatory when you are going to water them, and if put on an inverted flower-pot or anything of that kind they will drain through much quicker than they otherwise would do. Thus by taking a little trouble one can have flowers in the sitting-rooms all the year round; those who have greenhouses for the trouble of fitting up the baskets, and those who have not at a very trifling cost.

A. H.

*Upper Norwood.*

## A GAY CONSERVATORY IN SUMMER.

BY RICHARD TOMLINSON.



WITHOUT wishing to occupy space which can, perhaps, be more ably filled by the usual contributors to the *FLORAL WORLD*, I should like, as an amateur, to give my experiences in the cultivation of the zonal pelargonium for the decoration of the conservatory. As an amateur, engaged in business, it is impracticable for me to devote as much time and attention to the cultivation of my plants as the professional gardener, and, consequently, I have to resort to the most rough and ready methods. In the early part of April last year, I resolved to grow a few zonal pelargoniums for the conservatory, as some time previously one of your correspondents had highly recommended them for that purpose, and the result was so satisfactory that others of your amateur readers will do well to follow my example. Those who are able to spare the time, and have the necessary skill for the cultivation of huge specimens, will, perhaps, look down upon my humble endeavours; but I would beg of them to understand that I do not for a moment presume to instruct them.

Operations were commenced by selecting, early in April, three dozen strong plants that have been raised from cuttings struck the previous autumn, and were then in three-inch pots. Half of these were taken from my stock grown for bedding, and the others were purchased at a nursery where this class of pelargoniums are grown rather extensively. Being desirous of obtaining as great a variety of colour as possible, I purchased eighteen distinct varieties, and made the selection from a list published in the *FLORAL WORLD*, feeling assured that a better guide could not be had. The sorts purchased were: Richard Headly, Splendour, Sir John Moore, Jean Saisley, Charm, Glodshill, Madame Mezard, Charles Dickens, David Garrick, Miss Gladstone, Bride, Purity, Madame Jean Saisley, Acme, L'Aurore, Blue Bell, Master Christine, and Mrs. Sach. These well represent the various shades of colour, and the selection can be recommended, although, perhaps, a better one could be made by including a few of the novelties now being sold at a high price. As well-established plants were stipulated for, they averaged a shilling each. When they came home, stout labels, with the names legibly written, were provided, and they were forthwith transferred to six-inch pots, or two sizes larger than those three inches in diameter. This, in my opinion, is better than shifting them first into five-inch pots, and from these into sizes advised above, for the extra repotting does the plants no good, and the time and labour required for the second shift are thus saved. The pots were clean, and a thin layer of small crocks placed in the bottom, and a layer of the roughest part of the loam placed over them. When this was done the plants were turned out of the pots, the few crocks at the bottom of the ball removed, and also a little of the loose soil from the surface.



About half an inch of the stem was buried in the new soil, and the latter pressed firm between the old ball and the sides of the pot. The soil used was simply old rotted turf, and a small proportion of manure saved from a cucumber-bed broken up the previous autumn, and a little sand.

After they were repotted, they were placed in a frame in a sunny position, and kept close for a few days. In about a fortnight after the shift the leading shoots were stopped by pinching out the growing point. After this, air was admitted freely, and in fine weather the lights were drawn off altogether, and the only attention they received was supplying them with soft water, according to their necessities. Sufficient space between each plant was allowed in the pit to admit of the free development of the growth. They were removed to the conservatory as they came into bloom, and were placed so as to be fully exposed to the light and air. With the assistance of an occasional supply of guano water, they continued in full bloom until quite late in the autumn, and proved a great source of attraction to many of my friends, and afforded me a very considerable amount of pleasure and satisfaction.

## NOTES ON BEDDING LOBELIAS.

BY HENRY CANNELL, F.R.H.S.,

Station Road Nursery, Woolwich.



There is no doubt known to a large number of the readers of the FLORAL WORLD, that in my trial ground I thoroughly test the various classes of bedding plants. For several years past, I have grown a rather complete collection of bedding Lobelias, and have added the new varieties as they make their appearance. From careful observation of the merits of the several varieties now before the public, I have come to the conclusion that the under-mentioned are those of the greatest value for planting extensively in the flower garden.

### VARIETIES OF ERINUS.

*Brilliant*.—This is a great improvement on all the varieties of the *speciosa* type. In habit it is dwarf and dense, and the flowers are large and of a beautiful dark blue. They are also produced profusely and continuously, and will eventually be very generally grown.

*Compacta or Crystal Palace Blue*.—This is extensively planted, and is really a splendid variety.

*Indigo Blue*.—Very rich blue, with a large clear white centre, forming an effective variety by its striking contrast in colours.

*Speciosa grandiflora*.—One of the best of its class for bedding and other purposes, being of a compact habit, and of freer growth than the well-known *Speciosa*, it having proved to be more lasting and hardy; the flowers are large, dark blue, with fine white eye.

April.

*Blue Boy*.—This fine variety stands the sun and heat better than any other of its class.

*Trentham Blue*.—The flowers of this variety are very large, of the most lovely blue colour, with a clear white eye; the habit is exceedingly vigorous and branching, and a perpetual succession of bloom is maintained during the whole season; for large beds, or a line in a riband border, one of the best.

*Pearl*.—This is as yet the nearest approach to a white variety of *Speciosa*; it partakes of the character of the latter in its compact style of growth and the profusion with which its flowers are produced. It forms a close compact tuft, and, when in full bloom, appears a mass of white. The individual flowers, which are very large, are pure white, with the upper lobes very slightly tinged with blue; it is a decided acquisition.

*White Lady* (Knight).—This is very similar to the above, and in habit quite equal to the old blue *Speciosa*; makes a fine edging.

*Little Gem*.—This may be considered a great improvement on *Paxtoni*; it is very dwarf and bushy, and presents a solid mass of bloom; the best of the light blues, with a white eye.

#### VARIETIES OF PUMILA.

*Pumila grandiflora*.—This is a close compact grower, never exceeding more than six inches either way, and it forms a solid line of blue, and continues all through the season in bloom. For edgings, diamond or scroll bedding, it is a decided acquisition, and one of the best bedding Lobelias we have. Small plants are the best for planting, as they continue in bloom all through the season.

*Annie*.—This is of a light lilac, equally as good as the above in habit, and as free blooming; it makes a fine soft coloured edging.

*Celestial Blue*.—This is often of the same habit as the above; but it differs from it in having flowers of a beautiful light blue.

*Sunset*.—This is not quite so dense in habit, but rather dwarfer in growth, it is therefore admirably adapted for carpet bedding; its colour is of a beautiful reddish lilac, with a small white eye. Perfectly distinct.

*Purple Prince*.—This is in every way similar but its colour, and equally as valuable, perhaps a trifle taller. Colour purple, tinged with brown, with a white eye; it is well adapted for edging, and makes a most effective line.

FRUIT FARMING IN MICHIGAN.—The *Chicago Tribune* publishes a communication descriptive of the fruit interest of that part of Michigan of which St. Joseph is the head. From this it appears that it is not an unusual thing for 30,000 packages of peaches to go forward to Chicago in one day. The price per package realized is less than 50 cents: the cost of marketing alone is more than 25 cents; leaving only a small margin to pay for labour and for profit.

NOVEL WAY OF TREATING THE PAMPAS GRASS.—At a meeting of the Central Horticultural Society of France, M. Vavin recommended a novel mode of treating the pampas grass during the winter. This is simply to barn the exterior of the tufts in the end of autumn, and then leave them to themselves. Plants treated in this way, he says, will, in the following spring, push earlier and better than if they had been protected with mats or other coverings.

## SELECT GARDEN BEETS.

BY MESSRS. BARR AND SUGDEN,

12, King Street, Covent Garden, W.C.



FOR some years past we have paid a very considerable amount of attention to garden beets, and have grown side by side in our experimental grounds all the varieties, reputed or otherwise, that could be obtained. By this means we have succeeded in reducing the list of varieties very considerably; for some sorts were of an inferior character, whilst others were simply synonymes of the best types in general cultivation. Even now there are more varieties than are required for any one garden; but, as tastes differ with regard to colour and flavour, it is necessary to retain a considerable number of really distinct varieties. With regard to the cultivation of garden beet, a very few words will suffice to convey all that the amateur will require to know upon the subject. The soil must be in a nicely pulverized state when the seed is sown, and be also moderately rich; but it is not desirable that it should be recently manured, as the presence of fresh manure has a tendency to develop coarseness in the roots. Soils liberally manured and lightly cropped the previous season are perhaps the best for this crop; and next to this, preference may be given to soils manured last autumn. In either case, the best results may be expected from soil that was thrown up in ridges last autumn, and which has thus been fully exposed to the action of the weather during the winter. In sowing the seed, no better plan for private gardens can be devised than that of laying the ground out in beds four feet in width, and sowing three rows on each—one down the centre, and the others eighteen inches right and left of the middle row. Sow in April, and when the plants are well up, commence thinning out, so as to guard against the possibility of any injury resulting from overcrowding. The plants at the final thinning should be about nine or twelve inches apart, according as the variety may be of small or large growth; but it is not prudent to thin them to the full distance at first, for there is a possibility of some of the plants being injured when in a young state; but, by thinning according to the progress made by the crop, the danger of having blanks in the rows will be reduced to the lowest possible minimum.

The varieties which can be the most highly recommended for their general excellence are as under; and the amateur must select from the list according as he may require a large or small root, or a purple or crimson-fleshed variety.

*Covent Garden Dancer's Selection (Lobjoit)*, purple flesh; recommended.

*Cattell's Dwarf Purple Top*, purple flesh; a good useful variety for those who prefer largish roots.

*Dewar's Improved Short Top*, crimson flesh; handsome short-necked roots.

April.

*Barr's Selected Compact-topped Pine Apple*, crimson flesh ; beautifully-shaped roots, of uniform colour, boils tender and fine flavoured. This is a pure stock of the true Pine Apple Beet ; this variety is the very best for early sowings.

*Dell's Crimson-leaved Beet* (syn. *Dwarf Waterloo*, *Belvoir Castle*, and *Perfection Salad Beet*), purple flesh, the leaves of a rich dark crimson ; compact and upright, slightly arched, and of a uniform medium height, more effective in the flower garden than *Perilla* ; also an excellent variety for the table.

*Dwarf Victoria*, purple flesh, leaves rich metallic crimson, gracefully arched, uniform in height, and, judging from the sample test of 1871 in our experimental grounds, it is likely to supersede *Dell's Beet*.

*Nutting's Dwarf Red* (Barr's selection), purple flesh ; a very pure stock, with medium-sized roots, and for flavour surpassing all other beets.

*White's Black*, very deep crimson flesh, roots large ; a fine sort for those who prefer a large beet.

*Turnip-shaped Dark Red Egyptian*, rich in colour and flavour ; valuable for shallow soils.

*The Chelsea Beet*, in size and shape resembles *Cattell's Crimson*, but of a richer crimson ; flavour exceedingly fine, certified by the Fruit Committee, in Oct., 1869.

From the descriptions given there will be no difficulty in selecting the variety desired ; and it may be said with safety that all are thoroughly good.

## CHOICE BEDDING PELARGONIUMS.

Selected from the Royal Horticultural Society's Trial in the garden at Chiswick.



AMONGST other trials of flowers and vegetables in the Gardens of the Royal Horticultural Society at Chiswick, last summer, that of Bedding Pelargoniums was by no means the least important. Nearly 350 varieties, comprising the best kinds in cultivation, were grown ; and from that number the following are selected as being the very best in the several classes. It will be seen that some of the old varieties still hold a high position, whilst, on the other hand, some of the most popular sorts are, when thoroughly tested with others in the same classes, comparatively worthless. As being more easy for reference, we shall follow the classification adopted by the Royal Horticultural Society. The description will be as brief as possible, and, to avoid the necessity of repetition, it must be understood that all are really first-class. A few of the varieties are now in course of distribution for the first time, but the majority are procurable at prices ranging from four to nine shillings per dozen.

### PLAIN GREEN-LEAVED.

**FLOWERS SCARLET.**—*Ascendant*, bright scarlet ; very free-flowering, and a good grower.



*Warrior*, brilliant scarlet; strong in growth, like *Punch*, and of great value for large beds and poor soils.

FLOWERS ROSE PINK.—*Advancer*, rosy pink; dwarf and free-flowering.

*Maia*, bright, rich magenta pink; trusses small, but produce very freely, first-class.

*Mrs. Pottle*, bright pink-shaded magenta; very free-flowering, and desirable.

#### ZONATE OR HORSE-SHOE LEAVED.

FLOWERS SCARLET.—*Coleshill*, cerise scarlet; trusses large and fine, combined with a good habit.

*Commissioner*, pale scarlet; large trusses of small flowers, fine habit, and free-flowering.

*Diana*, crimson scarlet; flowers large and of good form, produced in rather small trusses.

*Dr. Lindley*, pale scarlet, with white eye; compact and free-flowering; well known for its usefulness.

*Emily Morland*, light scarlet with pale eye; fine flowers and trusses, and altogether a useful variety.

*Etna*, scarlet; good flowers and trusses, which are abundantly produced; very useful.

*Excellent*, cerise scarlet; fine habit, free-flowering, and one of the most effective varieties in its class.

*George Peabody*, bright scarlet; flowers of splendid shape, and produced in grand trusses; one of the very best bedders in its class.

*Jean Sisley*, clear scarlet with white eye; compact and very floriferous.

*Landers*, brilliant scarlet; in the way of *Vesuvius*, but altogether better, and therefore a most valuable acquisition.

*Mrs. A. Pirie*, intense scarlet; flowers large and of grand form, fine habit.

*Payne's Perpetual*, pale scarlet; trusses small, but produced in the most profuse manner; exceedingly dwarf, and of great value for small beds and marginal lines.

*Sydney Turner*, bright scarlet, with pale eye; flowers of fine form, good habit.

CERISE OR ROSEY SCARLET.—*Alfred*, bright carmine; very free and fine.

*Charles Dickens*, carmine, shading to cerise; very distinct and good.

*Crystal Palace Gem*, rosy cerise; well known as one of the best bedders of its class.

*Ianthe*, rosy carmine, with magenta shade; dwarf, and very distinct.

*Lucius*, bright cerise flowers, and trusses large, standing the weather well, robust in growth, and best adapted for large beds; very fine.

*Princess of Wales*, clear rose; very large truss, and dwarf and compact; very fine.

April.

FLOWERS ROSE PINK.—*Beauty of Lee*, carmine rose; small flowers and truss, but very dwarf, compact, and free-flowering.

*Mrs. Upton*, bright pink; very compact, free-flowering, and altogether first-class.

FLOWERS SALMON-COLOURED OR FLESH-COLOURED. — *Emile Licau*, bright deep salmon; free-flowering, and possessing a good habit.

*Hogarth*, bright salmon, shaded with lake; trusses and flowers large, and freely produced.

FLOWERS LIGHT, WITH DEEP SALMON OR ROSE CENTRE.—*Amelina Grisau*, pure white, with salmon centre; dwarf, compact, and very floriferous.

*Eugène Mezard*, white, shaded with salmon; dwarf and free-flowering.

*Queen of Beauties*, pure white, with salmon eye; fine habit, and useful.

*Rosebud*, white, with salmon eye; very distinct, free-flowering, and good.

*Vestal*, white, with salmon centre; similar to the preceding, and very fine.

FLOWERS WHITE.—*Purity*, flowers of good shape, and borne in good trusses; robust, but compact; the best in the section.

*The Bride*, French white; flowers large, and of fine form; dwarf and compact.

#### NOSEGAY VARIETIES.

FLOWERS CRIMSON AND SCARLET.—*Bayard*, crimson, flowers small, but produced profusely in small trusses; fine habit; good.

*Charlie Casbon*, brilliant scarlet; dwarf, and wonderfully free-flowering; first-class.

*Constance Nivelet*, orange scarlet; very free-flowering, and possessing a compact habit.

*David Garrick*, crimson scarlet; flowers very large, floriferous, and in habit exceedingly compact.

*Duke of Devonshire*, bright crimson scarlet; flowers large, and produced in huge trusses; exceedingly fine.

*H. M. Stanley*, crimson scarlet; robust in growth, yet compact and free-flowering.

*King of Nosegays*, rich crimson scarlet; trusses good; very desirable.

*Mrs. Mellow*, dazzling crimson; free-flowering and exceedingly good.

*Mrs. Vincent*, crimson scarlet; flowers and trusses good, and freely produced.

*Murillo*, crimson; flowers and trusses small, but freely produced; useful.

*Pride of Osberton*, brilliant scarlet; compact and good.

*Robert Bowley*, bright crimson scarlet; very free-flowering and effective.

*Soleil*, orange scarlet; strong in growth and useful for large beds.

*Stanstead Rival*, crimson, shaded with lake; dwarf, most profuse in flowering.

*Thomas Speed*, crimson lake; moderately compact, remarkably good.

*Triomphe de Stella*, orange scarlet; very dwarf and altogether first-class.

*Vesta*, brilliant crimson scarlet; robust yet compact; very attractive.

*Waltham Seedling*, rich crimson; well known as one of the best of its class.

*Wellington*, deep crimson; flowers of gigantic size and produced in huge trusses; grand.

FLOWERS CERISE OR ROSY SCARLET.—*Chilwell Beauty*, magenta rose; moderately strong grower, but free-flowering.

*Lady Kirkland*, purplish rose; flowers and trusses of large size, very free-flowering and the very best of its class.

*Masterpiece*, cerise shaded magenta; robust and free.

*Merrimac*, cerise magenta; compact, and a thoroughly good bedder.

*Violet Hill Nosegay*, lake rose; dwarf and compact, and a most profuse bloomer, first-class.

FLOWERS ROSE PINK.—*Amaranth*, rosy amaranth; very distinct and beautiful.

*Florence Durand*, bright magenta; flowers large but rather flimsy; promising.

*Pink May Queen*, bright carmine pink; flowers of good shape and produced in huge trusses, robust but compact, and wonderfully floriferous.

*Welbeck Nosegay*, very bright carmine; dwarf, compact, and remarkably free-flowering.

#### IVY LEAVED VARIETIES.

LEAVES GREEN.—*Crimson Ivy-leaved*, pale crimson; free-trailing habit.

*White Ivy-leaved*, white, tinged with rose; trailing habit, useful for small beds or rustic baskets.

*Willsi*, pale rose; very free, distinct and good.

*Willsi roseum*, magenta rose; very free and effective, compact habit.

LEAVES VARIEGATED.—*Duke of Edinburgh*, pale rose flowers; large foliage, vigorous in growth, and useful for beds or rustic baskets.

*L'Elegante*, flowers white; large foliage, thick and buttery, margin white, changing to deep rose with age.

## NEW FLOWERING BEGONIAS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



IN compliance with the request of a correspondent, conveyed in a letter which has recently been placed in my hands, I have prepared a few notes on the cultivation of the new-flowering Begonias. This has been done with much pleasure, for they are so thoroughly beautiful that they are all more or less entitled to take a high rank amongst flowering plants.

In speaking of the cultivation of the new flowering Begonias, it will be necessary to include several species and varieties which are not, strictly speaking, new. For example, *B. Veitchi* and *B. Boliviensis* have been in cultivation several years, yet it would not do to pass them by, for until quite recently they have commanded prices which have placed them quite beyond the reach of amateurs of limited means. Now, however, they are comparatively cheap, and those amateurs who have the aid of a heated pit or stove, and take an interest in raising seedling plants, may obtain a stock for a very little money, as they can be all most readily raised from seed, and seed of several can be obtained at the rate of half-a-crown per packet. Perhaps the most desirable course to pursue would be to obtain a moderately strong plant or a dormant tuber of each sort, and during the summer save a stock of seed from as many of the kinds as may appear to the cultivator desirable. If the latter course is pursued, and care taken to fertilize the flowers with pollen from flowers of a distinct colour or character, it is probable that several very beautiful hybrids may be raised. I have raised a very large number from seed, and although a few of the seedlings produced flowers inferior to those of the parents, the majority were exceedingly good, and there was a great diversity in the colours of the flowers of the seedlings; and thus a large stock of distinct varieties was obtained with no expense and very little difficulty.

The whole of the best of the new flowering Begonias, and to these only is it my intention to direct attention, are tuberous rooted; the stems die down on the approach of winter. This is a most important fact, and through an ignorance of it many fine tubers have been destroyed. It is very naturally supposed by those who are not well acquainted with their character, that when the stems have died down the plant has perished, and it is then turned out of the pot and pitched on to the rubbish heap. I have known of more than one or a dozen fine tubers being destroyed under the supposition that the plant was dead.

In commencing with a stock of young plants obtained from a nursery, it will be necessary to shift them into pots one or two sizes larger, and place them in a warm and rather close corner of the stove or greenhouse, as the case may be, to enable them to overcome the check without loss of time, and to start away vigorously from the first. In about three weeks afterwards, if they have made a



satisfactory progress, the pots will be nicely filled with roots, and they may be shifted into larger pots. It will not, in every case, be desirable to re-pot them at the last-mentioned stage, and, as a rule, a six-inch pot will be quite large enough for the plants the first year. If they come to hand nicely established in three-inch pots, they can be repotted at once in six-inch pots, and they will then require no second shift the first year. They will require rather liberal supplies of water when growing freely, but as soon as the foliage begins to assume a sickly appearance in the autumn, gradually lessen the water supply, and finally withhold it altogether. During the winter the pots can be placed under the stage, or in any other position, provided the pots are laid upon their sides to prevent the soil becoming saturated with moisture.

The second year's management will commence by shaking the tubers out of the old soil, and repotting them in clean pots, either of the same size or one size larger. Let the drainage be perfect, and the soil be pressed firm about the tubers, which should be buried about half an inch below the surface. The stove kinds should have the assistance of a brisk bottom-heat, and those succeeding in a greenhouse temperature the warmest corner that structure will afford, as it is essential to success that they should commence to make new growth without any unnecessary loss of time after they are repotted. Until the young growth has made its appearance well above the surface, the soil must be kept in a moderately moist state only, but, after considerable progress has been made, liberal supplies of water will be required, and, after they are well established in the pots in which they are to bloom, weak liquid manure will be of considerable service in promoting a continuous growth, and thus insure a much longer display of flowers, for, provided they continue to make new growth, they will remain in bloom until quite late in the autumn.

A moderately light and airy position in the stove or greenhouse is essential for maintaining a stocky, short-jointed growth, and a neat stake must be put to each to prevent their being broken off, a danger to which they are especially liable. A mixture of two parts turfy loam, one part peat, and one part leaf-mould, with the addition of a liberal proportion of silver-sand, will form a most excellent compost.

In raising seedlings, sow the seed thinly in pots filled with a light sandy mixture, and cover lightly. When of sufficient size to admit of their being handled conveniently, prick them off into small pots, and put several plants in each. Dry them off in the autumn, as advised for the old plants, and in the spring turn them out of the soil, and pot separately, and then manage as advised for the old plants.

The best of the greenhouse kinds are *B. diversifolia* (syn. *Martini*), *B. intermedia*, *B. rosæflora*, *B. Veitchi*; and of those requiring a stove temperature, *B. Boliviensis*, *B. carminata*, *B. Chambersi*, *B. Chelsoni*, and *B. Sedeni*.

## PLANTS IN POTS.

NOTES FOR AMATEURS ON THE CULTIVATION OF PLANTS IN POTS.

## IN TWO PARTS.—PART I.



THE cultivation of plants in pots is a different matter to the culture of the same plants in the open ground. A plant in a pot is like a bird in a cage, wholly dependent on the hand that feeds it and therefore in need of constant watching. A plant in the open ground is like a bird on a tree, for although it cannot fly to find food and drink, it can send its roots far and wide to search for what suits it, and many plants have the power to shift their ground, so that if the rich border does not suit them, they may, perhaps, try the gravel walk, and, if allowed, make a vigorous growth amongst the flinty pebbles. To grow a plant in a pot must be the aim of every amateur who possesses a greenhouse, and the task is not a small one. For the illustration of the subject let us take two extreme cases. The first shall be that of the unskilled beginner, who provides a large pot for a small plant, and some stuff which we must call mud for the roots of the poor thing to *perish in*. You will find examples of this case if you look for them, especially amongst beginners in window gardening. You will find that plants potted in black mud are kept soaking with excess of water for weeks together, until they are nearly dead, and then are allowed to go dust dry, and end their miseries ignobly. The other extreme is that afforded by the man who grows plants for the market. He provides for the public very large plants, wonderfully rich in leaf and flower, in pots so small that, like the king who was puzzled by the apple dumpling, one might wonder how the roots were ever got into so tiny a receptacle. The amateur may take lessons from both, but he is not to follow either, for the market system of plant-growing is not adapted in all particulars for the private garden. But if you will purchase one of these luxurious plants, you will find that it is in a new pot, and that the soil is sandy, and will not acquire the texture of mud or paste, even when heavily watered. If you turn the plant out of the pot, you will find that the roots form a tough, fibrous mass that have touched the pot all round, and, at the bottom, are closely wound round some pieces of broken brick or flower-pot that, in the first instance, were carefully packed so as to afford instant escape to every drop of water in excess of what the soil in the pot would retain without being actually wet. The leafy part of a plant must have light and air, and the roots must have air and moisture. The plant that was potted in mud was killed by suffocation, for the texture of the soil prevented the access of air to the roots. The beautiful market plant was nourished by air as well as water at the roots, and it was encouraged to make a free growth before coming into flower, which, in the first place, insured size; and then it was allowed to get pot-bound, which promoted the production of an

abundance of flowers; and to make amends for the comparatively small amount of soil in the pot, it was supplied from the first and always with soft water slightly charged with some fertilizing agent, and always warm as the air the plant was growing in. There were other circumstances that conduced to its perfection, but these we will not inquire into, because, as remarked above, the amateur cultivator would not be prudent in adopting the practice of the market grower *in extenso*, even if that were possible, as, generally speaking, it is not.

It is, therefore, important to master the art of growing plants in pots, and for the practice of this art a certain amount of machinery is necessary, which we shall now hastily describe.

THE POTTING SHED is the workshop, storehouse, and tool repository. It is a good plan to place it so as to cover the stoke-hole, and thus make a snug place of it in winter. It may be a quite rough affair, but it must be large enough and weather-proof, and quite light. Old window-frames and doors may be used up advantageously in making a potting shed, and a brick or tile flooring is to be desired. A lean-to with tiled roof, in which a few glass tiles are inserted, will answer well, if a wall can be spared for it, and the whole front may be open, if the situation is quite sheltered. If the front is closed there must be two or three windows. To give an idea of the proper size for such a shed, we should say that a length of twelve feet and a width of eight feet would suffice for a small garden. Any way, there must be room for handling plants and for a wheelbarrow to turn, and for a store of necessary materials.

A strong bench should run the whole length of the shed, and beneath it should be rough bins with sloping fronts for storing loam, peat, sand, and other stuff. The stout uprights which support the bench will afford a holding for the divisions of the bins, which should be six in number at least, one or two of them much larger than all the rest for loam and peat, of which there must always be a good store. The sloping front should drop into grooves to facilitate filling the bins. A locker for labels, seeds, and other oddments will be useful, and the whole of the garden tools may be accommodated on the back wall by providing rails and hooks to hang them on.

COMPOSTS for plant-growing are compounded in a great many different ways, as patent medicines are; but the wise cultivator will not have many of them. We will suppose that the bins are filled with materials. These should consist of mellow loam full of decayed fibre, tough fibrous peat, silver sand, leaf-mould, potsherds, old broken plaster or mortar, and the most rotten portion of the manure from an old hotbed or any similar source. With these before us we will prepare what shall henceforth be termed the *universal compost*. We will put upon the bench a bushel of the loam, a peck of leaf-mould, a peck of the powdery manure, and half a peck of silver sand, and proceed to chop them over and mix them with the trowel, throwing out all large stones as the mixing proceeds. If this is well done the compost will be ready, and will suit perfectly nine-tenths of all the plants you are likely to cultivate. Another useful compost will consist of one bushel of peat, one peck of leaf-mould, and

one peck of silver sand. This will suit for the remaining tenth; and, upon my word, if you never deviate from these prescriptions, you may become, by proper attention to other matters, an expert plant-grower and a winner of first prizes. Sometimes loam and peat are mixed, and we must confess that we ourselves mix them; but the mixing can scarcely be considered good practice, for one being decidedly acid and the other decidedly alkaline, they do not quite agree when chopped up together. As a matter of fact, however, it must be confessed that the best plant-growers employ both loam and peat in composts, and see no reason to doubt the propriety of the procedure.

It will be found in practice that young plants of all kinds and plants of soft texture, whether young or old, thrive best in a light soil containing a rather large proportion of sand, whereas plants that are advanced beyond the stage of infancy, and all plants of woody texture, of whatever age, require a firmer compost. Hence, in potting a lot of little things that have just begun to put forth roots, sand and leaf-mould may be added to the compost; or in shifting on robust habited plants that have acquired a place in the world, it may be well to add loam or peat, as the case may be, just as in feeding a baby soft food is alone suitable, whereas a "lubberly boy" will want cartloads of bread and meat and pudding.

It is a bad practice as a rule to sift composts, for they should always be rather lumpy, and the finest part should be reserved for filling in at the top of the pot. But sifting may be proper in preparing a mixture for seedlings and cuttings, and the finer the compost the larger should be the proportion of sand in it, to prevent its becoming an obnoxious paste. There ought not to be a single worm in any mixture for pot plants. Large stones must, of course, be removed. Any bits of decayed wood which occur in the leaf-mould should be thrown out. A mixture ready for use should be quite damp, yet dry enough to be handled freely without soiling the fingers. If it is wet and sticky it is not fit for use.

A capital basis for the universal compost may be prepared in the following manner:—Procure equal quantities of the top spit of a good loamy pasture and of good stable manure from well-fed horses. As they are carted into the yard have them built up into a tall square stack in alternate layers, a layer of turf, and a layer of manure, and leave the stack untouched for twelve months. Then cut from the stack by slicing downwards from the top as wanted, and take the mixture as the basis of a loam compost, adding sand and leaf-mould to lighten it, but not adding any manure, as in this respect it will be rich enough already.

Loams and peats differ so much in quality that it is difficult to convey an idea of what is good or bad of either. Nevertheless, it will not be difficult, in any district, to make discovery of the best sorts available for horticultural purposes, and the amateur who means it will soon discover the way.

Having always dwelt in a northern suburb of London, we have been accustomed to keep a good store of Wanstead peat in the garden



for all rough purposes, and have trusted to Epps's "selected" peat, which is packed in barrels and sold at a reasonable price by Mr. Epps, of Lewisham, for all the more delicate habited of the peat plants. As for the loam, that which we are best accustomed with is a modified clay, except when full of fibre; we use none but silver sand from Reigate for small work, but find the siftings of the sweepings of the gravel walks the best of sand in the world for general use. Leaf-mould must be prepared at home, and the way to ensure plenty is to lay up grass mowings, leaves, and the worn-out stuff from flower-pots in which plants have been grown, in a compact heap *above* the level (not in a pit or any wet place), and allow it at least twelve months to rot through; it is better if allowed to remain two years.

POTTING is a test of dexterity, even amongst experienced gardeners, for many who could pot off "bedding-stuff" by the thousand in "no time" would have to put on a "puzzling cap" if required to repot a gigantic agave or camellia; but on good potting success will turn more certainly than on any other separate process in all the round of greenhouse practice. We will first speak of the pots, which must always be clean and better if new. The sizes required for ordinary purposes are 60's, which are three and a half inches in diameter at top; 48's, which are five inches in diameter; 32's which are six inches in diameter; and 24's, which are eight inches in diameter. To clean old pots is a simple matter enough; but it may be well to remember that, if a lot of old pots are left lying loose about out of doors all the winter, they will be quite clean and as good as new in spring, for the frost will scrub them, not only on the surface, but in the very pores of the clay.

In preparing the pots, first of all place in the bottom, hollow side downward, a concave piece of crock large enough to cover the hole. Over this place a layer of crocks, the thickness of which must be regulated by the size of pot and the character of the plant. We will take a six-inch pot or "thirty-two." If a soft-wooded plant, such as a geranium or fuchsia, is to be potted, it will suffice to place five or six rather large crocks over the one that covers the hole. On the other hand, in preparing the pot for a hard-wooded plant—such, for example, as the heath, the crocks should be broken up small and placed in the pot somewhat regularly to a depth of about an inch. For large pots it will not be necessary to break the crocks so fine, but in no case must they be used too large. Over the crocks put a layer of the rougher portions of the compost, flaky leaf-mould or dried moss, to prevent the finer portions of the compost running down between the crocks and choking up the drainage. If precaution is not taken to prevent this mishap the superfluous water will be unable to escape, and the soil will soon become sour through remaining in a saturated condition.

To form a nice bed for the ball of the plant to be potted, put in the bottom a sufficient quantity of the compost to raise the plant to the desired height. No rules on this point can be given, but in no case should the crown of the plant be buried very deep, and in the case of large specimens of hard-wooded plants sufficient soil should

be placed underneath to raise the surface of the old ball of soil high enough to require little or no soil over it. In all cases the soil must be pressed firm, and composts consisting entirely or chiefly of peat will require much more pressing than would be desirable for composts of which loam is the staple. In potting off from cutting pots there will be no difficulty in pressing the soil firm enough with the hands, but in shifting established plants from one pot to another a potting stick will be necessary. This can be readily made, and the most convenient size will be fifteen inches long, an inch and a half wide, and between a quarter and half an inch thick at the top, to admit of its being more readily grasped with the hand; the corners can be shaved off with the knife. With this the soil must be worked regularly round the ball, so that no vacant space may be left between the old ball and the side of the pot. The soil must also be pressed to an equal degree of firmness all round the ball; for if less firm on one side than the other, the water will drain away down that side and the other side will be only partly moistened. In repotting plants growing in peat it is well nigh impossible to ram it too firm, and unless the new soil is made quite hard the water will run through it before the old ball has become properly moistened. It is owing to a neglect of this precaution that so many cultivators fail in growing hard-wooded plants satisfactorily. It is not less important for the old ball of soil to be of a proper degree of moisture for the well-being of the plant before it is transferred to a fresh pot, for when the soil is in a dry state there is a considerable amount of difficulty in moistening it afterwards. In the event of a difficulty in making the soil equally moist, whether in the case of a plant that has been long in the same pot, or one newly potted, make an end of the difficulty, by dropping it gently into a bucket of water, and leaving it there for half an hour, by which time the roots will be well wetted throughout.

S. H.

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### GARDEN GUIDE FOR APRIL.

KITCHEN GARDEN.—Owing to the wet weather during the winter, the work of the last month has been delayed, and seeds sown early will not be much behind those sown last month. Sow Windsor, Longpod, and Johnson's wonderful beans; Marrow and Prussian Blue peas, and a few rows of the earliest sorts, to come in before the late peas are ready. In small gardens, the dwarf kinds are always to be preferred. Sowings should also be made of Horn carrot, Savoy cabbage, Brussels' sprouts, Scotch kale, broccoli, cauliflower, and cabbages, for autumn use; a succession of such things being preferable to a glut all at once for the private grower. Among cabbages, Atkin's Matchless, Wheeler's Imperial, Early York, and West Ham are good sorts to sow now, but the main crop of cabbages should be up by this time, and must be hoed between, when the ground is in a fit state. Beet should be sown in the second week, in ground deeply dug, but not manured; the main

crop of celery should be sown on a rich warm border, the surface to be made light and fine; sow thin, and merely dust the seed over. Sow, also, onions, lettuce, radish, small salad, sea-kale, and asparagus; the two last, in drills, one foot apart, and one inch deep, for asparagus, and two inches for sea-kale; another mode of raising sea-kale plants is to sow in four-foot beds, the seed to be in patches of eight inches diameter, and two feet apart, and about eight seeds in each, the plants to be thinned to three plants in each patch; the ground should be rich, well drained and deep. Beds may also be formed now by planting the small roots about the size of a pencil, which should be cut up into nine inch lengths. Those who purpose raising seedling rhubarb plants, should sow about the middle of the month, in shallow drills, eighteen inches apart, dropping the seeds in patches, six inches from each other. All the varieties of the gourd family may be sown in turf or brick pits. Potatoes not yet planted should be got in without delay, and towards the end of the month scarlet runners and French beans may be sown; the runners should have a warm, dry position until the first of May, when they may be sown in almost any soil or situation without risk; but, like most other things, yield the best crops on ground well dug and manured. The main crop of carrots should be sown towards the end of the month, and there is still time for a crop of parsnips, if none have been sown yet, and as a small crop of so useful a vegetable is better than none at all, those who have delayed may still secure one. Slips of kitchen herbs may be put in any time this month, and will root quicker if planted in a rather dry sandy border.

**FRUIT GARDEN.**—Peaches, apricots, and nectarines should be carefully disbudded, and as soon as bloom is set, give the walls a shower from a garden-engine, to cleanse the trees and dislodge the pests that are ready to make havoc with the young fruit. Grafting may still be performed, but not a day should be lost.

**FLOWER GARDEN.**—Seeds of hardy annuals and perennials are to be sown early, and towards the end of the month the more tender kinds may be safely committed to the ground; but very small seeds of choice things had better not be sown till next month. Perennials may be planted out and old stools of phlox, chrysanthemum, Sweet William, etc., may be parted. Dahlia roots may also be planted, and if the shoots appear before night-frosts are over, they may be protected by flower-pots inverted over them, and the holes stopped with pieces of tile. Where early beds of dahlias are required this plan may be adopted in the putting out of young plants, and if well hardened first, the beds may be filled about the middle of the month, and inverted pots, litter, or netting, used to protect them during fits of cold wind or frost. Box edgings should be clipped, and ivy may be cut in and trimmed, and fresh plantations made of last year's roots. Cuttings of ivy may also be taken and planted in a sandy border, only partially exposed to the sun. The cuttings should be short-jointed, and trimmed of the lower leaves. Tigridia bulbs may be planted two inches deep. A light netting, or some similar protection will be found useful now as a protection to tulip beds, and



if the foliage becomes frozen, water them with cold water before the sun gets on them. Walks should be turned and rolled, and grass-plots dressed, so as to give an air of neatness and order to the whole of the ground.

**GREENHOUSE.**—If bedding-stock is still in request, cuttings should be struck in a brisk heat; they will bear much more heat now than they would a month ago. China roses may be propagated in pots by taking off young shoots close to the old wood when four inches long, and plunging in a moderate heat. General collections should only have a moderate heat, and a strong healthy growth should be promoted by giving plenty of air, with a view to putting-out the fires for the season. Many specimen-plants will want liberal shifts, and all subjects not immediately required in flower, should be regularly and frequently stopped to induce bushy growth and form good heads. Water and liquid manure must be more freely given, and vigilant efforts made to keep down the green-fly and thrips. Many of the less tender things may be removed to cold pits, to increase the room for other things that want continued protection to make fine plants. Young stuff from the propagating-house should be potted as fast as rooted, and kept close till started afresh, and then be gradually inured to air and light, so as to be strong by the middle of May. All tropical plants required for summer blooming in the house, should be got on without delay, and a quick growth promoted so as to allow them as long a season as possible for blooming and ripening their buds for next season. Average temperature this month 55 degs. by night, 60 to 65 degs. by day. Where desirable, the house may be shut up with sun-heat to render fire unnecessary.

**STOVE.**—Vines in bloom must be kept close, and with a little extra fire-heat to prevent injury from damp setting on the berries; melons should be encouraged to make quick growth until established, and then kept cooler to encourage the production of fruitful wood; but do not stop the main shoots till they have extended as far as the space allowed them, and then they may be stopped to promote the growth of laterals. Pines will want air as often as possible, but the atmosphere about them must be kept moist. Red spider will now be getting active, and must be kept down. Keep also a good look-out for green-fly, especially among young stock.

## NEW BOOKS.



**M**R. HEMSLEY, late of the Royal Gardens, Kew, has published a volume which we commend to every one of our readers, as the best of its kind, and a work that was greatly needed. It is entitled "*Handbook of Hardy Trees, Shrubs, and Herbaceous Plants*" (Longmans), and it forms a portly Svo of nearly 700 pages, handsomely printed, and profusely illustrated with excellent wood engravings. Mr. Hemsley's object has been to convey to the reader every item of information about every hardy plant worth notice, consistent



with his knowledge, which is extensive, and the ordinary need of those who cultivate plants chiefly as an intellectual and tasteful pastime. He has not drawn a hard and fast line about the term hardy, for the book contains ample notices of plants that are hardy only in the kindest of "kind climates," and is, therefore, comprehensive as a botanical review of the English garden. But he is careful in describing and recommending plants, and hence their adaptability to particular soils and climates has all the attention the subject demands. As a botanical catalogue, a cultural catalogue, and a perpetual book of reference, this work will, we feel assured, quickly acquire an important position in horticultural literature, and give satisfaction to all except the few whom nothing can satisfy, and happily their name is not legion.—Mr. David Thomson, of Drumlanrig Gardens, has added to the horticultural library a valuable work, entitled *Handy Book of Fruit Culture under Glass* (W. Blackwood and Sons). It comprises the culture of the Pineapple, Grapevine, Peach, Nectarine, Fig, Melons, Strawberry, and Cucumber. It is a sound practical work, the style lucid, and the arrangement convenient.—*The Six of Spades*, by the Rev. S. Reynolds Hole (W. Blackwood and Sons), is a charming book for the chimney-corner when fires are in vogue, and for the summer-house in days when flowers are gay and birds are singing. The scheme of the work is to record the doings of a gardeners' club, whereof the author is president. The members are presented as imaginary characters, but no doubt Mr. Hole's characteristic sketches are founded on facts, and we may assume that some six of his horticultural friends have sat to him for their portraits. Any one who can enjoy the gossip of a scholar, an observer of nature, and especially of human nature, an enthusiastic lover of flowers, and a very masculine Englishman to boot, will find a heap of joy in the "Six of Spades," which with pleasure and duty we assign to the handiest shelf of the garden library.—*The Floral Guide*, by H. Cannell, of the Nursery, Station Road, Woolwich, will interest amateur growers of bedding and soft-wooded plants, for it contains the largest list of such plants published, and the lists are accompanied with useful remarks on the characteristics of varieties, their relative values, and the cultivation they require.—*The Garden Oracle* for 1873 is founded on the old model, but is more than usually well-stocked with selections of plants, flowers, seeds, etc., for the guidance of purchasers, and the statistical tables contain several useful novelties.—*The Public Ledger Almanack* for 1873 (Child's, Chestnut Street, Philadelphia), is issued gratuitously to the subscribers of the celebrated *Public Ledger*, but why it should be sent to us is beyond our guessing. It is a very neat and comprehensive work, chiefly occupied with statistics of national and municipal affairs, interesting chiefly to citizens of Philadelphia, but by no means valueless to citizens of every nation, as exemplifying the working of institutions that hold an important position in the machinery of modern civilization.

## HORTICULTURAL AFFAIRS.



**ARCH EXHIBITIONS OF SPRING FLOWERS.**—During the past month several exhibitions of spring flowers were held, and as all were more or less successful, the fact that a greater interest is taken in spring flowers than was the case a few years since was demonstrated in the most forcible manner. The two first were held in the Gardens of the Royal Horticultural Society at South Kensington. At the first of these, held March 5, the principal features were the Cyclamens and Orchids. The principal exhibitors of the former were H. Little, Esq., Cambridge Park, Twickenham, and Mr. James Redlees, Isleworth. Both exhibitors staged most splendid specimens in the second class, and in the class for an unlimited collection Mr. Little produced the grandest display ever seen of these beautiful flowers, by staging upwards of two hundred large and beautifully-flowered specimens. At the second meeting, March 19 and 20, the principal feature was the display of Hyacinths contributed by the leading trade and private growers. The collections comprised a few of the newer kinds, but they were principally made up with well-known kinds, of which Baron Von Tuyl and Charles Dickens may be mentioned as examples. Amongst the miscellaneous contributions were excellent examples of *Astilbe japonica*, Lily of the Valley, and other decorative plants. The exhibition on the 26th ult., in the Gardens of the Royal Botanic Society, Regent's Park, was eminently attractive, and Hyacinths, Narcissus, and spring flowers generally were well represented. The exhibition of spring flowers at Bow, which was made up entirely from the gardens of amateurs, was exceedingly beautiful, and of considerable extent. The display of Hyacinths and spring flowers generally, in St. George's Hall, Liverpool, was, as usual, very fine and well-attended. Messrs. Downie, Laird, and Laing's exhibition of spring flowers at the Crystal Palace, from the 22nd ult. to the 31st ult., was thoroughly good in every way, and much admired by the thousands of visitors who saw it.

**THE VINE DISEASE.**—M. Duclaux, who was charged by the Paris Academy to examine into the new vine disease, which has lately been so destructive to vineyards, points out that the more or less rainy character of the winter, and especially of October and November, is an important element in the case. Light rains have merely the effect of sending the *Phylloxera* down from the superficial to the deeper roots, and thus its ravages are even increased. It is only when the water accumulates in masses, and with pressure, as in inundations, that the insects are killed by it. The several floods of the last few months are consequently regarded as having been beneficial.

**THE PRODUCTION OF VARIETIES BY BUDDING.**—In a recent issue of the *Revue Horticole* occurs a statement of M. Dubreuil's, respecting the production of varieties by budding. M. Dubreuil mentions having seen certain roses, such as General Jacqueminot, Géant des Batailles, and others, with some of their flowers spotted with pale rose spots. The variegation was constant and transmissible by budding. The supposed cause of this peculiarity is attributed to the fact that the grower, being obliged to use shield buds in which there were no apparent eyes! obtained, nevertheless, a shoot, all the flowers of which were variegated. The exact words are, "écussons dépourvus d'yeux apparents." He repeated the experiment with the same result, and continues to do so at will. The experiment is easy; and we hope those who are sceptical will try it at the right time, for M. Dubreuil is not the man to publish a statement like this without some foundation.

**FRUITERERS' COMPANY.**—The annual banquet of this company was recently held at the Loudon Tavern, Mr. R. Broadwater (master) presiding. The *City Press*, in its report of the proceedings, says: "This company, according to ancient custom, have the honour annually to present specimens of fruit to the Right Hon. the Lord Mayor for the time being. The origin of this custom, it has been considered, is that the Lord Mayor's meter was formerly entitled to receive a portion or sample from every load of fruit coming into the City. The practice occasioned much controversy between the collector of such samples and the persons bringing in the fruit, until the company arranged that a present should be made to the Lord Mayor annually. In return, the Lord Mayor invites the court and officers of the company to a banquet at the Mansion House. At this dinner, according to ancient

precedent, the master and wardens of the company have precedence of all other guests, and the master has the privilege of escorting the Lady Mayoress to the dinner-table."

THE INTERNATIONAL EXHIBITION OF FRUITS, VEGETABLES, AND AUTUMNAL FLOWERS, that will open at Manchester on Sept. 3 next, promises to be one of the most important events that has ever occurred in connection with horticultural exhibitions. The subscription to the prize fund, up to the present time, amounts to £1300.

THE BLUE DAISY.—The *Botanical Magazine* for February contained *inter alia* figures of a blue daisy, a charming plant from Morocco, of which amateur and professional horticulturists should take notice.

BATH EXHIBITION OF THE ROYAL HORTICULTURAL SOCIETY.—The total amount of the Local Special Prize Fund is £1,096, so that with the grant from the general fund of the Society, about £1,800 will be offered in prizes, which is £200 in excess of the amount offered at Birmingham last year. At a meeting of the committee, it was resolved to devote £50 for cottagers' prizes.

FERTILIZATION OF YUCCAS.—A remarkable case of instinct has been discovered by Professor Riley, of St. Louis, U.S., in the moth which produces fertilization in the yucca. The female moth collects the pollen and thrusts it into the stigmatic tube, and, after having thus fertilized the flower, she consigns a few eggs to the young fruit, which her larvæ afterwards feed upon. The yuccas which have been introduced into Europe on account of their showy blossoms are infertile from the want of the moth.

IMPORTATION OF PINE-APPLES FROM THE AZORES.—Captain Godfrey, in a very interesting account of "St. Michael's and its Fruit Gardens," recently published in the *Gardeners' Magazine*, gives the following particulars of the importation of pine-apples from the Azores:—"The pine-apple is a somewhat novel subject of Azorean industry, for though it has been grown on the islands time out of mind, it is only of late years attention has been given it as a profitable candidate for the favours of the markets of northern Europe. The pines are grown under glass, and are never cut until quite ripe; and, as they can be carried from St. Michael's to London in a few days, they stand before all other imported pines, and are actually better than English-grown pines in the winter season. They are mostly carried in steam-vessels, and are very carefully packed for the purpose: the very best are enclosed in light cages or crates made of laths, every fruit having a few inches of stem left, which is thrust into a flower-pot filled with moist earth. Those of second quality are fixed in flower-pots, and packed upright in boxes, inside which laths are fixed to keep them steady, and these boxes are covered with glass. Thus, while on their short voyage, they are actually improving for the table: were they packed closely, and shut up in the dark, they would be deteriorating. The average weight of smooth Cayenne pines from St. Michael's is six pounds; that of Providence pines eight pounds to ten pounds. About 2000 are sent to London alone, and are sold by auction in Pudding Lane, at prices that amply repay both producer and importer. It is now not uncommon for the vessel that takes pines away to bring back glass for the extension of the pineries, so surely is this branch of island enterprise extending."

CLIMATE v. DIRT.—Robert Rawlinson, Esq., C.E., in a remarkably interesting letter, points out some striking contrasts between the effects of climate and the effects of various kinds of preventible pollutions on the health of man. The letter merits careful perusal as a most important contribution to the science of hygiene, one of its most evident teachings being that, as a rule, bad climates owe their badness much more to human folly, and ignorance, and wickedness, than to the action of what may otherwise be regarded as the laws of Nature.

GOLDEN ROD TEA.—An American paper notices the arrival at Chicago of thirteen bales of Blue Mountain tea, weighing 1920 lb., from Tower Hill, Schuylkill county. This tea is composed of the leaves of a variety of the golden rod family, botanically known as *Solidago odora*, or sweet golden rod. It is gathered in large quantities on the Blue Mountain, and the mountains to the north of that range. The tea matures in the latter part of September, and it is gathered until late in October. It is then cured and put up in packages, selling on the mountains at from 20 c. to 30 c. per lb., but retailing in villages and towns at a dollar per lb. The tea has a very pleasant aromatic flavour, and is held by many persons in great esteem.



## TO CORRESPONDENTS.

UNHEALTHY SUCCULENTS.—*J. B.*—Perhaps your plants have had too much water during the winter, as they require very little in that season. Those in a bad condition, if their roots are out of order, had better be shaken out of the pots, and repotted in fresh stuff. They will begin to require more water now.

CALADIUMS IN GREENHOUSE.—*H. I. K.*—You will not be successful with Caladiums in a cool greenhouse. If you had a vinery or heated part in which to grow them through the spring and early part of summer, you might keep them in the greenhouse for a couple or three months, say through June, July and August. The lowest temperature to keep them through the winter is 50°, and you have lost the bulbs through the temperature being too low.

THE OLD ASHLEAF POTATO.—*Clericus.*—We are amazed at your asking for information as to where you can procure the Old Ashleaf Potato, for it is well known and justly valued in almost every garden in the country for its uniform goodness in all soils and climates. It is a regular and neat tuber of true kidney shape, the skin smooth, eyes rather crowded at the crown, but otherwise few, comparatively inconspicuous, and those on the side marked with a neat shallow eyebrow; the growth moderate and neat, allowing of close planting. The flesh is decidedly yellow, which is the only defect of this fine old variety. The flavour is first-rate. The texture is mealy, light, and nutritious. A first-rate potato for forcing. There are many sub-varieties, which differ from the original in very trifling particulars, although two or three of them are, by their superior fruitfulness, to be preferred. The real old Ashleaf potato may be obtained true without difficulty. If planted before April, it is usually ripe at the end of July, or the first week in August, and is very rarely touched with disease.

COOKING BEET.—*Mrs. G.*—Messrs. Barr and Sugden offer, in the last issue of their Spring Catalogue, the following remarks on cooking Beet:—"In the process of cooking, beet is frequently made hard and unedible, and the seedsman or gardener made to bear the consequences of the cook's shortcomings. Following up our experimental trials, we have looked into the cook's department, and offer to our readers the following conclusions. 1. In preparing beet for cooking, the greatest care must be taken not to bruise the skin, or in any way wound the root; and if by accident any injury has been done to the root, bake and not boil. 2. If a deep crimson hue is the colour preferred in the beet, or a firm flesh, this is best attained by baking the roots. 3. If a light, clear bright colour is desired, or a soft, juicy flesh, then boiling will secure this. 4. If a rich, agreeable flavour is sought for, then select the beet which, before cooking, has the most purple in it, and the flavour may be discovered by masticating a small portion of the uncooked root. If up to the mark, it will leave a rich agreeable flavour on the palate without any sensation of astringency in the throat. Barr's selection of Nutting's Beet has the desired qualities in the highest degree. 5. Crimson-fleshed Beets are all very rich in flavour; but when masticated uncooked, an astringency will be discovered as above described; this class of beets, however, has its advantages; inasmuch as it can be sown earlier. Barr's selection of Pine Apple Beet is the most desirable of these; it may be sown very early, and will not run to seed. 6. Scarlet-fleshed Beet possess least of the saccharine flavour, and Nonpareil best represents this class. Thus it is that Nature is generous in providing for the various tastes of the children of men."

GREENHOUSE BULBS.—*W. G.*—The following constitute a good selection:—*Amaryllis*, Aurea, Crispa, Hendersoni, Belladonna, Belladonna rosea perfecta, Belladonna speciosa superba, Formosissima, Longifolia rosea, Procera, Revoluta. *Nerine*, Corusca, Fl. xuosa, Fothergilli, Planti, Sarniensis, Undulata, Venusta. *Vallota* purpurea, *Purpurea* elata, *Purpurea* eximea, *Purpurea* major. *Hyacinths*, *Single Red*, Amy Cavaignac, Dichitz Sabalskany Emmeline, Fabiola, Florence Nightingale, Garibaldi, Gigantea, Howard, L'Ami du Cœur, Le Prophete, Lord Wellington, Macaulay, Madame Hodgson, Mrs. Beecher Stowe, Norma, Ornement de la Nature, Princess Clothilde, Princess Helena, Robert Steiger, Solfaterre, Von Schiller, Vuurbaak. *Single White*, Alba maxima, Baroness Van Tuyk, Grand Vainqueur, Grande Vedette. Grandeur à Merveill, La Grandesse, L'Innocence, Madame Van der Hoop, Mont Blanc, Queen of the Netherlands, Snowball. *Single*



*Blue*, Argus, Baron Von Tuyll, Bien Mourant, Charles Dickens, Couronne de Celle, Feruck Khan, General Havelock, Grand Lilas, King of the Blues, L'Ami de Cœur, Leonidas, Mimosa, Orondatus, Princess Mary of Cambridge, William I. *Single Yellow*, Alicia Jacoba, Bird of Paradise, Duc de Malakoff, Heroine, Ida, King of Holland, Single Lilac, Charles Dickens, Czar Peter, Haydn L'Unique, Sir Henry Havelock. *Double Red*, Bouquet Tendre, Groot Vroost, Koh-i-noor, Lord Wellington, Prince of Orange, Regina Victoria. *Double White*, Anna Maria, Jenny Lind, La Tour d'Auvergne, La Virginité, Prince of Waterloo, Virgo. *Double Blue*, Blocksberg, Garrick, Laurens Koster, Lord Wellington, Van Speyk. *Double Yellow*, Bouquet d'Orange, Heroine. *Roman*, Early White. *Tulips*, *Single*, Artus, Belle Alliance, Bride of Haarlem, Canary Bird, Chrysolora, Cottage Maid, Couronne Pourpre, Duc Van Thol (in variety), Fabiola, Joost Van Vondel, Keizer Kroon, Le Matelas, Monument, Pottebakker, red striped, white and yellow varieties, Princess Helena, Proserpine, Queen of the Violets, Roi Pepin, Rose Aplatie, Rouge Luisante, Thomas Moore, Van der Neer, Vermilion, Brilliant, Yellow Prince. *Double*, Duc Van Thol, Duke of York, Gloria solis, Imperator, Rubrum Murillo, Princess Alexandra Tournesol, red and yellow, Tournesol, yellow. *Polyanthus nareissus*, Bazelman major, Double Roman, Florence Nightingale, Gloriosa, Grand Monarque, Her Majesty, Lord Canning, Paper White, Queen of the Netherlands, States-General, Sulphurine. *Crocus*, Bride of Abydos, Caroline Obisbolm, David Rizzio, Golden Yellow, La Majesteuse, Princess Alexandra, Queen Victoria, Sir Walter Scott. *Scilla*, Amœna, Bifolia, Siberica. *Ixias*, Aurantiaca, Brutus, Bucephalus, Crateroides, Cyrus, Golden Drop, Hybrida longiflora, Hypatia, Rosea maculata, Ruby, Viridiflora. *Sparaxis*, Angelique, Garibaldi, Grandiflora, Josephine, Leopard, Maculata, Nain, Tricolor, Victor Emmanuel. *Tritonias*, Aurea, Brilliant, Crocata, Eclair, Elegant, Fenestrata, Squalida. *Babianas*, Atrocyanæa, General Scott, Kermesina, Rosea grandis, Speciosa villosa. *Liliums*, Auratum, Browii, Giganteum, Longiflorum eximium, Speciosum album, Speciosum roseum, Speciosum rubrum.

**BEE-KEEPING.**—*Curate.*—We really cannot find time, or afford space, for the discussion of the several questions you submit. It may, however, interest you, and promote the cause, if you will direct the attention of your friends to the subjoined Twelve Reasons for preserving the Life of the Honey Bee, which we copy from the third edition of "Rustic Adornments for Homes of Taste:"—1. Humanity prompts us to preserve the lives of the creatures that associate with us, and more especially of those that render us special service. 2. The honey harvest commences earlier in depriving hives, and is less interrupted by excessive heat or sudden changes of weather. 3. In depriving hives the drones are sooner expelled, and the labour of workers is not suspended to prepare for swarming. 4. The stocks may be much more rapidly increased on the depriving system, and more hives kept in operation. 5. Deprived honey is of higher quality than that obtained by suffocation; it may always be had *new*, and free from the taint of sulphur. 6. The honey can be taken at the best period, and as it is wanted. 7. As swarming seldom takes place at the height of the honey harvest, there is no fear of the loss of swarms, no cause of alarm to the bee-keeper, and the work of the hive is free from interruption. 8. In the old straw-hives the same comb is used again and again for worker-brood, and the bees degenerate in consequence. In improved hives the comb may be periodically removed, and the population maintained in its natural vigour. 9. As the autumn bees live through the winter, their preservation conduces to the success of the spring campaign and honey commissariat. 10. The humane treatment affords the best opportunities for the study of bee history and economy. 11. For purposes of ornament, depriving hives excel all others; the latter are restricted in design as in use. 12. The world holds the name of Herod in abhorrence; therefore, let no lover of rustic life and scenery stain his hands by a slaughter of the Innocents.

**ROSES FOR POT-CULTURE.**—*R. W.*—The following list of roses contains all that are first-rate:—*Tea-scented*, Adrienne Christophle, Belle Lyonnaise, Bougere, Comte de Grivel, Coquette de Lyon, Devoniensis, Gloire de Dijon, La Boule d'Or, Le Nankin, Lord Eldon, Madame Celine Noirey, Madame Ducher, Madame Falcot, Madame Margottin, Madame Villermoz, Madlle. Cecile Berthod, Marie Van Houtte, Reine du Portugal, Souvenir d'un Ami, Souvenir d'Elise Vardon. *Hybrid China*, Juno, Paul Verdier, Paul Perras. *Noisette*, Cloth of Gold, Celine Forestier, Lamarque, Maréchal Niel, Triomphe de Rennes. *Hybrid*

*Perpetual*, Anna Alexieff, Antoine Ducher, Beauty of Waltham, Baronne Prevost, Caroline de Sansal, Charles Lefebvre, Comtesse de Oxford, Dr. Andry, Duchess of Sutherland, Elie Morel, Elizabeth Vigneron, Felix Genero, General Jacqueminot, Glory of Waltham, Jules Margottin, La France, Madame Caillat, Madame Charles Wood, Madame Clemence Joigneaux, Madame la Baronne de Rothschild, Madame Marie Ciroddé, Madlle. Annie Wood, Madlle. Marie Rady, Madlle. Eugenie Verdier, Madlle. Therese Levet, Marguerite de St. Amand, Marquise de Castellane, Marquise de Mortemart, Pierre Notting, Prince Camille de Rohan, Princess Beatrice, Princess Christian, Princess of Wales, Souvenir de Mons. Boll, Souvenir de Poitean, Vicomte Vigier, Victor Verdier.

**CANNA NEPALENSIS.**—*A New Beginner.*—This canna is easily raised from seed sown in pots filled with a mixture of light rich soil, and the pots then placed upon a hotbed, or in a house or pit kept at a temperature of about 70°. Soak the seed previous to sowing in hot water. It should be put in hot water, and allowed to remain until the water has become cool. The *Amaranthus* can be raised in a similar manner from seed, but the seed must not be covered so deep, neither must it be soaked in water before it is sown.

**BEDDING GERANIUMS.**—*A New Beginner.*—The plants should be potted off singly without delay. Use moderately light soil and three-inch pots. The *calceolarias* may be potted off or planted out in a bed of rich soil made up in the frame, or in a sheltered corner of the garden. In the latter case, it will be necessary to protect them from frost with mats or canvas.

*Osmunda.*—The *Tropæolum* may be grown with as much success in North Essex as in Scotland. To have it in perfection, it must be grown in a moderately and rather light soil, and have a light and sunny situation. The seed of the other plant mentioned does not require any special treatment, and may be sown in the open border. The Castor Oil Plant can be easily raised from seed sown in a greenhouse. Place the seed-pots in a position where the sun can shine upon them to warm the soil, but take the necessary precautions to keep the soil in a moderately moist condition, for if it is allowed to become dust dry after the seed has germinated, the chances are that a considerable proportion will perish.

**HEPATICAS.**—*E. W. D.*—The most suitable soil for these beautiful flowers is a deep rich sandy loam, inclining to be stony. They also grow with a greater degree of vigour in a partially shaded situation than in one fully exposed to the sun. It is also of great importance to plant clumps of considerable size in positions where they will not be likely to be disturbed when the border is dug over. If there be no choice of position, the greatest care must be exercised when digging the border to avoid disturbing them. When large masses occupy selected spots, cover them in the autumn with a thin layer of well-decayed leaf-mould or manure, through which the flowers will push during the spring months.

**CALCEOLARIA CUTTINGS.**—*R.*—These, taken off towards the end of the month, will strike freely in your frame. You must adopt some means for shading from the sun until they are somewhat established and able to bear it. Light sandy soil, with a layer of sand over the surface, is the best compost for rooting them. After they are rooted, good turfy loam and a third part of manure is best for potting them in.

**IRIS IN POTS.**—*Commelina.*—To manage iris in pots is an extremely easy matter. We suppose they are in the greenhouse now, and there they must have plenty of light, air, and water. As they go out of flower, remove them to the open air in some sheltered half shady spot, and, if convenient, plunge the pots to the rim in any clean material, such as cocoa-nut fibre refuse or coal-ashes, and keep them watered regularly until the leaves begin to die down, when they should be allowed to go nearly, but not quite dry. Shake out and repot in September, and put them in a frame, and in November take them into the greenhouse. Proportion the watering to their condition, giving but little until they are growing freely, but never let them become dust dry.

*Wordsley.*—Your double primula is a pretty flower, of good substance and form, colour white, shading to very delicate pinky flesh. It is impossible for us to say if it is better than varieties in cultivation without seeing the plant, but the flowers sent suggest that you have got a good thing.

*G. P.*—You can obtain a small boiler for hot-water heating, or a small gas apparatus of the very best construction, of the Thames Bank Iron Company, Bank-side, London.





WHITE HYBRID TEA ROSE.



## MARECHAL NIEL ROSE.

*(With Coloured Illustration.)*

BY GEORGE GORDON.



THE popularity of Maréchal Niel rose is fully accounted for by its splendid qualities. The rose garden is rich in yellow roses; but this, the latest of the series, surpasses them all in the vigour of its growth, comparative hardiness, and the profuse production of its large, finely-formed, and richly-coloured flowers. It is already grown most extensively in the gardens of all classes; but at the present moment it is not grown so largely or as well as one might expect, and this is mainly owing to the existence of the belief that it requires a special system of culture. This I believe is entirely without foundation, for it conforms most readily to the excellent rules laid down in Mr. Hibberd's popular "Rose Book" for the cultivation of yellow roses. Indeed, so clearly do the directions in that work for the cultivation of yellow roses apply to this splendid rose, that, excepting for the assistance of those readers who have not the "Rose Book" to refer to, it is quite unnecessary to say anything about its management.

Maréchal Niel rose is occasionally classed in the trade catalogues with the tea-roses, but it is unquestionably a Noisette, although it has a strain of tea blood in it, and is, perhaps, the hardiest of its class. Throughout the southern and midland counties it can be grown out-of-doors in the greatest perfection, and with but small risk of its being cut off by the winter's frost. In the north it can also be grown moderately well in a warm position against a wall, but the chances are that about every third or fourth winter it will be cut down to the ground even with considerable protection. It is on record that in the neighbourhood of Derby it withstood the effects of the severe winter of 1866-67 without injury, but it is very certain that in Yorkshire it is killed with the thermometer considerably above zero. In sheltered nooks of such favoured spots as Worthing and Bonchurch, Isle of Wight, it will be found quite at home, and at this moment I have in my mind's eye a cottage in the Isle of Wight that on one side is covered with a single plant, which throughout the early part of the summer is fairly loaded with grandly-developed flowers, thereby proving, in the most unmistakable manner, the fact that in favourable situations it is quite at home in the open air.

Whether grown under glass or against a wall out-of-doors, the details of management will not be found to differ materially. At the commencement, strong plants on their own roots should be selected, as preferable to those on the brier or Manetti stock; but if there is any difficulty in securing them on their own roots, those worked on the brier must have the preference. Some rosarians act upon the belief that it is not well able to support itself on its own

roots, whereas there is not another rose in cultivation that will do better on its own roots. As a proof of this, it is only necessary to refer to the gigantic specimen in the nurseries of Messrs. Kelway and Son, at Langport, Somerset. Last year this specimen covered the back wall and roof of a large orchard-house to a length of forty feet, and it would have extended over a greater portion of the wall and roof if the space could have been spared for it. Although it had only been planted out three years, it produced upwards of one thousand flowers last year, besides furnishing sufficient cuttings for the propagation of five hundred plants for trade purposes. It is true the large specimen in the nurseries of Mr. Harrison, at Darlington, which produced three thousand blooms during last year, and covered in December last an area of nearly 650 superficial feet of the roof of the house in which it is planted, was worked upon the Manetti; but immediately it was turned out of the pot it pushed out roots of its own accord, and may be virtually considered on its "own roots." Of the vigour of this rose there appears to be very little limit, for last year the Darlington plant above referred to produced a shoot twenty-four feet long, and there is no telling what length it would have attained had not its progress been accidentally checked.

The best way of cultivating *Maréchal Niel* under glass in private gardens is to plant it in a border or large pot or box, and train it just under the rafters of the conservatory or greenhouse, unless there is a rose-house such as that figured in the "Rose Book." In the latter case, the rose-house will be the most appropriate place for it, although it is entitled to rank high as a conservatory climber. Sound turfy loam and partly-decayed manure chopped up roughly, and incorporated together at the rate of three parts of the former to one of the latter, forms a most excellent compost, and a more suitable mixture does not appear possible. A few bones broken up moderately will be of considerable service in maintaining the fertility of the soil, and if there are any available for that purpose they should be utilized. When it is necessary to use pots or boxes, let them be of a large size, for it will be difficult, if not impracticable, to repot them when trained to the roof; but when growing in large pots they can, with the assistance of annual top-dressings, be kept in a most healthy condition. The drainage, which may consist of crocks or broken bricks, must in every case be sufficient to carry off the superfluous moisture within a reasonable time.

Rosarians differ somewhat in their opinions as to the manner in which the *Maréchal* should be pruned, and some go so far as to assert that it should be pruned in the most moderate manner only, whilst others contend that it may be pruned severely. It is an easy matter for any one practically acquainted with the matter to effect a reconciliation between the two extremes, for in the one case allusion is made to the long rods which healthy plants will produce, whilst in the other the lateral growth is referred to. In reality, this rose requires pruning in much the same manner as other strong-growing varieties, for the strong rods require to be simply shortened back to a moderate extent, whilst the lateral shoots must be cut back to the first or second bud; and, in addition, all weak shoots

must be entirely removed to prevent overcrowding. It must be understood that, if the long, vigorous shoots are pruned severely, other strong shoots will be produced; whilst, on the other hand, if the tops are simply taken off, and the rods placed, as far as practicable, in a horizontal position, laterals bearing flowers will push from nearly every bud, and a grand display of colour be the result.

## CULTIVATION OF HARDY FERNS UNDER GLASS.

BY J. JAMES,

Head Gardener, Redlees, Isleworth, W.



THE outdoor fernery may be justly considered the proper place for the cultivation of British and hardy exotic ferns, but they are so exceedingly beautiful when grown under glass, that a collection should be grown indoors in all gardens where room can be found for them. In point of beauty, the fine varieties of the Lady Fern, the Male Fern, the Hart's Tongue, and the typical *Polystichiums* are unsurpassed by any of the exotic species, and, moreover, they can be most successfully cultivated without the assistance of any artificial heat, which at this moment is a matter of considerable importance. They, therefore, have special claims upon the attention of the amateur with limited means, and I will as briefly as possible point out the way by which they can be most successfully cultivated.

In the first place, it must be said that there are two ways of growing hardy ferns under glass; one, planting them out on a well-prepared rockery, and the other in pots. They certainly have a very attractive appearance when judiciously planted on a rockery, but for the amateur it will, perhaps, be more desirable to cultivate them in pots. By having them in pots it will be practicable to fill the house with other hardy plants, if it is unheated during the winter and spring, for the ferns may be wintered out of doors, provided they are placed in a sheltered corner, and protected from severe frosts by means of liberal coverings of long litter or the common dry fern. Protection of some kind is absolutely necessary to prevent the frost splitting the pots, and possibly injuring the roots by reason of the manner in which they will be exposed to it. A goodly collection may be grown in a deep frame or pit, but it is more desirable to have them in a span-roof or lean-to house of medium size, because of the greater facility with which they can be inspected and attended to. In either case the structure should be on the north side of a wall or building, so that the plants may enjoy the fullest exposure to the light without the possibility of the sun injuring them. It will also be less difficult to maintain a cool and moist atmosphere about them in the hottest weather. They can, of course, with the assistance of shading materials, be grown in span-roof houses occupying exposed positions or lean-to's, having other aspects than the north, but the north aspect is decidedly preferable.

When grown in houses, it is desirable to have a flat stage or table on each, or one side of the walk, with a layer of shingly gravel or cocoa-nut fibre refuse for the plants to stand upon, as the moisture arising therefrom will be highly conducive to a healthy growth. The water which drains from the soil will help to keep the material damp, and, if necessary, water can be poured over it occasionally. When in frames the plants can be placed upon a layer of coal-ashes.

In commencing the culture of British ferns in pots, the best course will be to procure a sufficient number to partly fill the house or pit, or as many as may be afforded, in three or five-inch pots. If they are strong and well established, they should at once be shifted into pots two sizes larger, and then no further repotting will be required until next spring. When newly repotted, due care must be taken to avoid over-watering, but when well established, liberal supplies of water will be required. In warm weather a gentle sprinkle overhead in the evening will also be beneficial, but at the same time a moderate degree of atmospheric humidity must be maintained by pouring water on the floors and stages.

After the first year an annual shift, using pots two sizes larger each time, will suffice to maintain a steady growth throughout the season. The pots must be properly drained, and a compost consisting of about two parts fibrous peat, one part turfy loam, and a liberal proportion of silver-sand employed. During the winter the plants must be kept rather dry, especially the deciduous species and varieties, but the soil must not be kept dust dry, or the roots will perish, and the plants suffer in consequence.

For a beginner the following will form a very good collection, and they may be obtained at a comparatively cheap rate:—

*Asplenium adiantum-nigrum*, *A. a.-n. acutum*, *A. marinum*, *Athyrium* (Lady Fern) *filix-fœmina apuæforme*, *A. f.-f. corymbiferum*, *A. f.-f. Elworthi*, *A. f.-f. Fieldiæ*, *A. f.-f. Frizelliæ*, *A. f.-f. grandiceps*, *A. f.-f. multifidum*, *A. f.-f. plumosum*, *A. f.-f. ramo-cristatum*, *A. f.-f. Vernoniæ*, *A. f.-f. Victoriæ*, *Cystopteris fragilis* *Dickeana*, *Lastrea filix-mas Barnesi*, *L. f.-m. Bollandiæ*, *L. f.-m. crispa*, *L. f.-m. cristata*, *L. f.-m. furcans*, *L. f.-m. Ingrami*, *L. f.-m. polydactyla*, *Osmunda regalis cristata*, *Polypodium vulgare cambricum*, *P. v. multifido-cristatum*, *Polystichum angulare brachiatum*, *P. a. cristatum*, *P. a. Elworthi*, *P. a. grandiceps*, *P. a. plumosum*, *P. a. precliferum Wollastoni*, *Scolopendrium vulgare crispum*, *S. v. laceratum*, *S. v. macrosorum*, *S. v. marginato-coronatum*, *S. v. ramo-cristatum*, *S. v. ramo-marginatum*, *S. v. undulato-lobatum*.

The following hardy exotics are in every way desirable for associating with the British species:—

*Adiantum pedatum*, *Asplenium consimile*, *Cyrtomium falcatum*, *Lastrea decurrens*, *L. opaca*, *L. Sieboldi*, *Polystichum setosum*.



## PREPARING AND PLANTING FLOWER-BEDS.

BY THOMAS TRUSSLER.



All who have the good fortune to possess a flower garden are actively engaged in preparing the beds in readiness for the plants with which they will be filled during the summer, a few remarks upon the manner in which the beds should be prepared and planted will, perhaps, be of considerable service to many readers of the *FLORAL WORLD*.

Beds that are unoccupied in the winter should be prepared during that season; but as spring flowering plants are now so extensively grown, there are but few gardens in which this work can be done much before the early part of May. The first steps will, of course, be to clear the beds of the spring flowers, and to deal with them according to their requirements—such things as daisies, polyanthus, and violas being planted in nursery beds; and the forget-me-nots and silene, which can be raised from seed sown in the summer, either cleared off and removed to the rubbish heap, or chopped up and turned in when the beds are dug. As the spring flowers are rather late this season, it will not be desirable to wait, in every instance, until they are quite past their best, because of the risk of the summer bedders being injured by the delay. When the beds are empty, give them a liberal supply of manure. Of course every one must use some degree of judgment as to the dressing, for much depends on the plants with which the beds are to be filled. For beds to be filled with verbenas and calceolarias, the soil cannot well be too rich. A lighter dressing will be quite sufficient for all the scarlet geraniums, for if the soil is too rich there will be an excess of leafage over the flowers. The same may be said of all the variegated varieties; if the soil is too good they lose the delicate colours for which they are so much admired, and therefore fail to answer the desired end. But, as a general rule, a bed intended for any kind of summer flowering plants should have a dressing of some sort to enrich it. The beds having been manured, take out a deep trench at one end of the bed, say two feet wide, and the same depth, if the bottom soil is good; if not, take off the good mould from the top, and well stir the bottom soil, mixing with it some manure or rubbish of any sort. Follow on through the bed in the same way, and when the end of the bed is reached, the soil taken from the first trench will fill up the last one. After this let the beds be well forked over once or twice, so that all the soil may be well mixed with the manure, and also that it may be thoroughly exposed to the air for a few days previous to the bed being planted.

By adopting this plan there is a great advantage gained, by the bed not requiring any watering in the busy summer season, when every hour is of great importance to those who have their hands quite full of other work without using the water-pot. I have invariably found that plants growing in beds prepared as recommended in this paper do not want watering after they are well established in the beds.

May.

In planting the flower garden, which of necessity occupies a considerable time, due regard must be paid to the relative hardness of the several subjects, so that the work may be commenced at the earliest moment, without exposing the more tender subjects to the cold and otherwise unfavourable weather occasionally experienced during the month of May. The hardiest plants should, of course, be put out first, and the most tender last.

Calceolarias and Verbenas are, perhaps, the hardiest of the tender bedders, and should therefore be put out first. Ageratums and Geraniums are the next hardiest, and such things as Coleus, Iresine, and Alternantheras the most tender. Hardy plants like Cerastium tomentosum, Stachys lanata, and Veronica incana, which are used for edging purposes, should be taken up, divided, and replanted annually. When allowed to remain in the same position for several years without being disturbed, they become ragged and unsightly. Take the Stachys for an example; when left undisturbed for several years together, it produces its large ugly flower-spikes in such abundance as to require the most incessant attention throughout the summer to keep the edging tidy. On the other hand, when divided and replanted annually it seldom flowers, and practically requires no attention to keep it in order.

All plants used for the flower-beds, whether growing in pots or not, should have a thorough soaking of water the night previous to their being put out, for when put out with the ball of soil dry they suffer severely, as the water applied to them afterwards runs down the sides without moistening the soil in which the roots are confined. When they are turned out of pots, the roots should be loosened round the outside to enable them to strike more readily into the fresh soil. Loosening the roots as here suggested will, of course, take up more time than would be taken up in simply turning the plants out of the pots and dropping them into the holes, as is so generally practised. However, the small amount of extra time and trouble required will be more than repaid twentyfold, as they will grow away at once, instead of remaining at a standstill for several weeks. The plants should also have a good soaking of water in the evening after they are planted. A light sprinkle overhead at the same time will also be of immense assistance to them.

The plants grown in beds of soil made up in the frames must be taken up carefully, a few at a time, and taken direct to the bed in either a sieve or shallow box. After the planting of the bed is completed, it should have a thorough soaking of water to settle the soil about the roots. The evening should, as far as possible, be taken advantage of for putting out the plants grown previously without pots.

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SECRETING CANALS OF PLANTS.—The last number of the *Annales des Sciences Naturelles* contains a memoir on the Secreting Canals of Plants, by M. Van Tieghem; a paper On the Nervation of the Ovule, by the same author; a memoir on the same subject, as last mentioned, by M. Le Monnier; Observations on the Bulbs of *Lilium Thomsonianum*, by M. Duchatre (this has been already alluded to by us); and various other papers on Cryptogamic and Fossil Botany.

## VERONICAS OUT OF DOORS.



N the interesting paper styled "Beautiful Trees for Kind Climates," in the March number of the FLORAL WORLD, amongst other plants mentioned as living out of doors all the year round in mild climates are Veronicas. Having grown a good number I hope I may be excused taking up space in the FLORAL WORLD on this subject.

Every season I have bedded out a good number of these plants, both the common blue and the variegated, as they make a nice background to a ribbon border. They were put out with the bedding plants, and when autumn came they were lifted, cut back, and put in pits or under the stages till spring, when they were trimmed and potted off in a mixture of leaf-mould, loam, and sand to start into growth and be fit to turn out with the rest of the plants when the bedding time came round.

While away from home last summer I happened to see in a number of gardens large plants of Veronicas which must have been out of doors many years, so I determined to try some and see how they would stand out here; so when it came to the time for lifting such plants as would not remain out of doors I left some of my Veronicas still in the ground; they continued to bloom freely up till the first week in February (on New Year's day I cut a large bunch of their flowers), and, I believe, would till now only the last frost has nipped the very young growth, but only so as to check the blooms, not in any way interfering with the health of the plants; so I shall leave the most of mine out altogether. Some people, I believe, do leave them out during the winter covered with mats, or cut down and coal ashes put over them, but mine were in no way protected.

A. H.

*Upper Norwood.*

## HOW TO UTILIZE OLD BULBS.

BY WILLIAM JOHNSON.



IT is very generally supposed by amateur and other cultivators that old hyacinths, and other Dutch bulbs, are of little service after they have done flowering; but, from personal experience, I can state that this supposition is altogether wrong, and that they can be made to serve a very useful purpose. Acting upon the advice you gave to the readers of the FLORAL WORLD some few years since, I have each season taken great care of the bulbs, and planted them out in the flower-garden, and the results are most satisfactory.

In my garden are two rather large borders filled with old-fashioned flowers of various kinds, mostly selected from your lists, and they certainly present a most attractive appearance throughout

the season. But what I wish to direct attention to at this moment is the manner in which the bulbs of hyacinths, narcissus, and tulips are utilized after they have done flowering. Those which bloom early are kept in a cold frame until April, as it is not desirable to expose them to severe frosts, and those which bloom late are simply placed in a sheltered corner for a week or ten days. As they are removed from the conservatory, the several colours are placed together, and some time during the month of April, or early in May, they are planted along the front of the border in clumps of six or eight bulbs. We are not particular as to keeping each variety by itself, but we aim at planting the colours separately, and we have clumps of light blue, dark blue, pink, red, white, and so on, and the effect during the spring is exceedingly good.

In planting them out, we simply turn them out of the pots, and remove the crocks from the bottom of the ball of soil, and then plant deep enough to cover the bulb with about two inches of soil, and place a short stake in the centre to indicate their whereabouts when the foliage has perished. After this, they require no further attention, and year after year they continue to push up neat little spikes of flowers, which are of great use for cutting or for producing a rich effect in the border. The spikes are poor in comparison with those produced by newly-imported bulbs, but they are none the less useful for cuttings for vases, etc. The narcissus and tulips are placed behind the hyacinths, and in their season produce a very pleasing effect. In a few years I shall have filled my borders with as many bulbous flowers as they will conveniently hold with but little trouble, and without a farthing expense. In advising my brother amateurs to follow my example, I would thank you for the hints which you gave upon the subject, which have been the means of enabling me to beautify my garden with what was previously considered waste material.

## BEAUTIFUL TREES FOR THE CLIMATE OF LONDON.

BY W. BELL, ROYAL BOTANIC GARDENS, KEW.



Reading the March number of the FLORAL WORLD my attention was drawn to the selection of trees and shrubs to be noted growing and flourishing in any of the southern localities. It is quite possible to have most of the subjects mentioned under cultivation in the climate of London if they were properly managed, but we do not find this very often to be the case. A host of handsome greenhouse plants might be grown outside if a proper situation was afforded them, and a little care taken in the planting. The general rule for planting such trees or shrubs (or, as they are termed, "greenhouse plants") is after they have attained a large size or got out of form, and anything but pleasing subjects in either the greenhouse or conservatories, they are turned outside in the early part of



summer and allowed to remain in their pots till the approach of winter. When the time comes for the housing of the greenhouse stock, perhaps there is not room inside the house for the whole, in consequence of which some other favourites that had taken their place during the summer months are allowed to remain in the house for the winter season. Then the outside plants are looked over, and the worst are left outside (these are the poor sufferers), they are taken and planted as soon as convenient.

It is not giving such plants a fair chance to turn them out for the winter after they have completed their growth in pots. The consequence of such folly is simply that the plants so treated die; whereas, had they been planted out in the spring they would have become established and would suffer but little the following winter. It is not by planting large old specimens that the greatest success is obtained in this matter; but rather by planting young healthy plants. This should be done as early in the season as possible, so that the plants will get thoroughly established the first year. By planting small specimens they can be protected the first two or three years in case of severe weather, and when they have attained some size will not require protection in winter.

The selection which I here note down are all growing outside in the Royal Gardens, Kew, and are perfectly healthy specimens:—*Azara integrifolia variegata*, native of Chili; *Aloysia citriodora*, the scented verberna; *Berberidopsis corallina*, *Berberis Nepalensis*, *Benthamia fragifera*, *Colletia horrida*, very curious and interesting; *Ceratonia siliqua*, *Cistus montpeliensis*, *Carsima quinqueferis*, *Clanthus punicens*, well set with flower; *Drimys aromatica*, *Euonymus macrophylla*, *E. Japonica latifolius albus*, *E. radicans variegata*, *E. Japonica aureus variegata*, *Eugenia Americana*, *Eurybia latifolia variegata*, *E. Forsterii*, *Eleagnus pungens variegata*, *Fabiana imbricata*, *Grevillea rosmarinifolia*, *Ilex latifolia*, *I. balearica*, *Olea Europæa*, *O. fragrans*, *Osmanthus ilicifolius*, *Parochetus Thunbergia variegata*, *Schotia speciosa*, *Veronica angustifolia*, *V. decussata*, *V. Imperialis*, *V. lobelioides*, *V. Kermesina*, *Vitis tricuspidata*.

## PETUNIAS FOR CONSERVATORY DECORATION.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



THE double and single-flowering Petunias are exceedingly useful and very effective in the conservatory during the summer season, when they are nicely grown, and I should like to offer a few remarks on their proper management. As a rule, they are not met with in first-rate condition, mainly owing to their being neglected during the early stages of growth, and frequently placed too far from the glass. They are certainly not difficult to manage, and by commencing at

May.

the present moment with small well-established plants, they may be had in splendid condition towards the end of the summer, when they will be found of special service, as the number of flowering plants adapted for decorative purposes is not at that period by any means large.

In commencing with a stock of young plants, furnished with one or two stems only, pinch them back to within four or five joints of the base, and when the young shoots are about an inch in length, shift into five-inch pots. Those which have been stopped already and have started into growth again, may be repotted at once. After the first shift, place them in a frame or greenhouse, the temperature of which is maintained at or about 60°, and sprinkle the foliage once or twice a day, according to the weather. When they have recovered from the shift, and the side-shoots have attained a length of from five to six joints, pinch them all back to about three or four joints each. These will soon break again, and when the young shoots are half an inch in length, remove the plants to a cold frame, and admit very little air for the first two or three days. After a fortnight's stay in the cold frame, shift the whole stock into the blooming-pots, the exact size of which must be determined by the cultivator; but, for general decorative purposes, the sizes known as six and eight inch are the most suitable.

In all stages of growth keep them as close to the glass as circumstances will permit, and after the first few days of the stay in the cold frame, ventilate freely to promote a dwarf and stocky growth; indeed, at this stage the lights may be drawn off altogether during the day, whenever the weather is sufficiently favourable to admit of its being done with safety. After the last shift, the shoots must be trained out regularly in the usual way, to promote the formation of well-proportioned specimens.

Syringe once or twice a day, but, as a rule, once will be sufficient to keep them free from dust and insects. If, however, greenfly and thrips make their appearance, fumigate before they are able to commit any mischief. There is not much fear of either of these pests mustering in sufficient force to do any harm, if the plants are properly supplied with water, and syringed overhead in the manner here suggested. Clean soft water should be used until the pots in which the specimens are to flower are well filled with roots, and then weak liquid manure may be substituted for it, and its use continued throughout the season.

There is no better compost than a mixture of two parts turfy loam, and one part of decayed manure and leaf-mould. The varieties grown at Ealing Park are mostly selected from seedlings of the previous year. Those who prefer growing named varieties may, of course, do so, but I do not feel justified in occupying the space necessary to give a list. At all events, those who want one cannot do better than refer to the "Garden Oracle."

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## SHOWY FLOWERS FOR THE CONSERVATORY.

BY THOMAS TRUSSLER.



IN the following remarks it is my intention to offer a few hints on the cultivation of the more showy plants adapted for conservatory decoration which may be raised from seed. By selecting the proper subjects, commencing early, and encouraging the plants to make a vigorous growth from the first, a very beautiful display of flowers may be had in the conservatory during the latter part of the summer and the whole of the autumn. To enable me to compress these notes into the smallest possible space, I will at once say, that all the subjects that will be mentioned can be most successfully grown in a mixture of turfy loam and leaf-mould, or decayed manure. The pots, it is necessary to add, must be clean and well drained; and until the plants are put in the pots in which they are to flower, they must not become pot-bound; for when they are kept too long in small pots they receive a considerable check, and many will commence to flower prematurely, and all the care possible afterwards will fail in producing good specimens.

**AMARANTHUS.**—The Willow-leaved Amaranth, *A. salicifolius*, is very attractive, and useful for conservatory decoration. The main point, to secure specimens with richly-coloured leaves, is to raise the seed in a cucumber or other heated pit, and to keep the plants in the same structure until they are established in three-inch pots. After arriving at this stage, remove them to the greenhouse, and in about a fortnight shift into six-inch pots, which is the largest size they will require. They can then be placed in the open air, or allowed to remain in the greenhouse. In both cases they must be fully exposed to the sun.

**ASTER.**—The *Dwarf Bouquet*, *Large-flowering Dwarf Pæony*, and *Dwarf Chrysanthemum-flowered*, are all exceedingly useful for the conservatory. To have them in perfection, sow the seed in pans, and prick them off, when about an inch in height, into three-inch pots, and shift into pots two sizes larger when they are established. They must be grown entirely in the open air after all danger from frost is past, and, to reduce the labour of watering them, plunge the pots in any loose material that may happen to be available for that purpose. It is desirable to place them far enough apart to prevent overcrowding, and a supply of moderately strong liquid manure twice a week will be of considerable assistance after the plants are well established in the pots in which they are to flower. The plants must not be divided when they are repotted. Sometimes they will be attacked with green-fly, and when this happens, sprinkle them with water, and then dust the foliage with tobacco-powder, which must be allowed to remain on twenty-four hours, and be then washed off with clear water. If left on too long, a danger exists of the foliage being more or less injured.

**BALSAMS.**—Usually cultivators are advised to sow the seed in

heat early in Marc'h. This is altogether unnecessary, excepting when the plants are required in flower early in the summer. Plants raised from seed sown now will bloom superbly during the autumn, when they will be of the most value for decorative purposes. Not unfrequently the failures we occasionally hear of may be attributed to sowing the seed early, and subjecting the plants to a starving process, owing to an insufficiency of room previous to the bedding plants being cleared out of the houses and pits, preparatory to their being planted in the summer quarters. The seed should be sown early in the month, and the seed-pot put in the cucumber frame; or, if that course would be inconvenient, a warm corner of the greenhouse will do. Immediately the plants are well above the surface, place the pots near the glass, to prevent their being drawn up. Pot off separately when about two inches in height, and bury the stem to within a short distance of the seed leaves. After they are nicely established, a cold frame will be the most useful quarter, provided they are placed near the glass. Few classes of plants are more likely to suffer when placed in a dark or insufficiently ventilated part of either the greenhouse or pit than balsams. By shifting them on as they fill the pots with roots, they can be grown to almost any size; but for ordinary decorative purposes, specimens in six or eight-inch pots will be the most suitable. If extra large specimens are required, remove the flower-buds from the main stem; but in all other cases they should not be removed, for by far the largest and most double blooms are produced on the main stem. After the pots are well filled with roots, liberal supplies of water will be required, and at every alternate watering, liquid manure may be substituted for clear water with advantage. The *Camellia-flowered* and *Rose-flowered* varieties are alike good.

**BROWALLIA.**—These are pretty little annuals, and well worthy of being grown on a small scale. They succeed best when kept in rather small pots, in a cucumber or melon pit, during the earliest stages of growth. To produce large specimens with the smallest amount of trouble, put four plants in three-inch pots when they are pricked off, and then shift them into five or six-inch pots, without dividing them. *B. elata*, blue, and *B. elata alba*, white, are both good.

**CELOSIAS.**—To have these in perfection, sow at once, and place the seed-pots in heat, and keep the young plants in a warm corner of the greenhouse until they have attained a considerable size. Five-inch pots will be quite large enough for these plants. The red varieties are the most attractive, but the yellow varieties are well worth growing.

**COCKSCOMBS.**—The cultivation of these plants is very similar to that of the *Celosia*, when they are required for ordinary decorative purposes. The main point is, perhaps, to procure seed from a good strain. They must be placed near the glass, and at each potting bury the stem low in the soil, to keep them as dwarf as possible.

**MIGNONETTE.**—Sow the seed in five-inch pots, and then thin out the seedlings to about four to each. The open air or a cold frame will be the best situation until the plants are required in the



conservatory. To secure large plants, remove the first flower-spikes before the flowers expand, and use liquid manure alternately.

**PHLOX DRUMMONDI.**—The varieties of this phlox are all of great value for conservatory decoration. They can be grown singly or several in a pot, and when large specimens are required, the last-mentioned course will be the best. They may be grown in a pit or greenhouse until they are in flower. They will require stopping once or twice, and should be supported with neat stakes when necessary. The scarlet and purple varieties are the most attractive.

**THUNBERGIA.**—All the varieties are useful for baskets, but they may be grown advantageously as dwarf specimens. To produce these, sow early in the month, and place the seed-pots in heat. Prick the seedlings off into five-inch pots, and immediately they are nicely rooted transfer them to pots two sizes larger. Then fix in the pots a wire trellis or a few branches of birch, for the growth to trail over. Syringe them frequently overhead, to prevent red-spider, which are very partial to the leaves, taking up their quarters upon the foliage.

## FUCHSIAS AS BEDDING PLANTS.

BY HENRY CANNELL, F.R.H.S.,

The Nursery, Station Road, Woolwich.



AS the bedding season is once more at hand, it appears desirable that we should consider the claims fuchsias have upon us as bedding plants. Their value for conservatory decoration is well known and appreciated, but their capabilities for garden decoration are not estimated so highly as they should be.

In the cultivation of fuchsias as bedding plants there are three essential points to which special attention must be directed. The first is to select beds in moderately sheltered positions, the second to well prepare and to liberally enrich the staple soil with manure or leaf-mould, and the third to put out strong plants. It must be distinctly understood that fuchsias do not thrive satisfactorily in a dry, hot position, fully exposed to the rough winds, and they are therefore quite unfitted for terrace gardens or other situations similarly exposed; neither are they adapted for geometrical gardens. The best way, in my opinion, to deal with them, is to select a bed in an isolated and rather shady position, and then fill it with several sorts, somewhat regularly intermixed as regards the colours of the flowers. Then if they make satisfactory progress they will soon form a solid mass of healthy green foliage, regularly studded with their pendant flowers.

With reference to preparing the beds, it is only necessary to say that the soil should undergo a preparation by first dressing it liberally with well-decayed hotbed or stable manure, leaf-mould, or vegetable

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refuse, or a mixture of two or more of these fertilizers, and then digging it up rather deeply. The grand point is to place within the reach of the plants plenty of food, and to make the soil sufficiently open to enable the roots to extend freely, and take advantage of it. If the soil is heavy, a barrowful or so of road or other grit, in addition to the manure, will be of considerable service in promoting a healthy development of growth and flower.

The importance of putting out strong plants has been already alluded to, but it is desirable to remark that large plants are not absolutely required, provided they are well established and thoroughly hardened off. Plants raised from cuttings struck about twelve months since, which early in the present season were cut down nearly to the surface of the soil, and have made a good growth since, are perhaps the most suitable. The size of the plants must be taken into consideration in filling the beds, and the distance between them regulated accordingly. After they have been planted a month or so, the surface of the beds should be covered to a depth of four or six inches with partly-decayed manure or flaky leaf-mould, to maintain the soil in a nice cool and moist condition, and in dry weather a few thorough soakings of water will be of considerable service. They should also be sprinkled overhead occasionally in dry weather. This can be done with the garden engine or syringe, or it may be done with a watering-pot, to which a moderately coarse rose has been affixed.

All varieties are not alike suitable for bedding, and from my large collection, which comprises nearly two hundred and fifty sorts, I have selected twenty as being exceptionally good for the purpose in question. They are as follows:—

*Dark varieties*: Constellation, Lizzie Hexham, King of the Doubles, Rifleman (double), Norfolk Giant, First of the Day, Tower of London, and Mr. Lyndoe. *Light varieties*: Wiltshire Lass, Marginata, Minnie Banks, Prince Alfred, Arabella, White Perfection, Alba coccinea, and Evening Star. *Varieties with white Corollas*: Conspicua, Emperor of the Fuchsias, Vainqueur de Puebla, and Mrs. Ballantine.

Some of the hardy varieties are splendid objects planted in beds or in the front of shrubberies, and I would strongly recommend their being more extensively planted than is the case at present. The fact is, few amateurs are aware of the existence of the most attractive of the hardy kinds. *Riccartoni* and *Longiflora* are two fine species, and Mr. Bland, gardener to Lord Kilmorey, has succeeded in raising several hardy hybrids, with flowers large in size, and partaking of the characteristics of the vigorous-growing show varieties. These will, I believe, prove valuable acquisitions, but as they are now in my hands for distribution, I do not feel justified in saying anything further respecting them.

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## ON GARDEN WALLS: A LESSONS FOR TOWN GARDENERS.

BY W. D. PRIOR, ESQ., CLAPTON.



ONE of the greatest disadvantages with which the town gardener has to contend is the brick wall which usually divides his premises from his neighbour's, and which is not only an unsightly feature in itself, but appears especially contrived to preclude as much as possible the free circulation of light and air, and in other respects to add to the difficulties of suburban cultivators. Indeed, in some of those enclosures attached to residences of older date, when space was less valuable, or bricks less costly, these separating walls are so high, as to reduce the so-called garden to a coffin-like strip, equally adverse to health as to enjoyment. In such melancholy situations the borders will be found dank and water-logged, and the soil sour and utterly unfitted for wholesome vegetation; inhabited for the most part by sickly lilacs—when ill-done the shabbiest of trees—abundant crops of toad-stools in neglected corners, diversified by scrubby trees, sometimes fruit trees that never bear. We are now speaking more particularly of houses with some pretension to respectability, forming for the most part the residences of the middle-class population of large towns, although it is in the metropolis the evil chiefly prevails. Not only is the modern system of building in rows of streets, back to back, the premises being separated by a close wall instead of open palings or rails, prejudicial to the healthy and elevating pursuits of the garden, but it has a serious bearing upon the public health. In houses so built, and so shut in, often with so short a distance between the backs, the space so enclosed forms a species of culvert of stagnant air, the inhabitants virtually breathing and re-breathing each other's exhalations, and those of their closets, drains, and dust-bins, always prominent objects in such localities. The mischief is often aggravated by blocks at each end. The air in these enclosures never gets disturbed or set in motion, except some violent wind accidentally sets in in the special direction in which they lie. No wonder that fever becomes more prevalent year by year, and that its unnoted ravages are found more fatal than virulent epidemics. The legislator who would enforce a law for opening out these mischievous boundaries, and restoring the utmost circulation of the air in close neighbourhoods, would deserve the gratitude of the generation. The influence of plants upon the atmosphere is a scientific truth too widely known to admit of question; indeed, such action is one of nature's balances, which cannot be disturbed without injurious results. Restore healthy vegetation to crowded neighbourhoods, and you restore one element for counteracting disease, as well as promoting a moral tone and elevating taste amongst those who at present have little encouragement, from adverse conditions, for such developments.

But, however, our walls are there. The landlord will not  
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remove them, or substitute a more wholesome arrangement; and, would he do so, our next neighbours, right and left, "Churl" and "Curmudgeon," animated with the traditional Englishman's love of privacy, and jealous of innovation, would not permit it. It only remains, therefore, to make the best of circumstances, and mitigate evils that cannot be removed.

The first thing we have to do, then, is to study the dimensions with which we have to deal. If we are the happy possessors of semi-detached premises, we shall probably have a certain extent of width in our allotted strip. In such a case, we construct a border at the foot of the wall all round, and bodily plant it out with quick, strong-growing evergreens; converting blemish into beauty, and securing a screen of verdure to meet the eye all the year round, and afford an agreeable basis and background for any style of laying out our plot we may think proper to adopt; such arrangements are, however, outside our present purpose. The case we have supposed presents an unusually favourable specimen of the "garden wall;" the more common illustration will be a rough, uneven structure of coarse bricks, line upon line as far as the eye can reach, enclosing a narrow plot reached through kitchen or scullery door, a narrow stripe of tiles or stones conducting to the dust-bin of the establishment. We shall say nothing of the frequent water-butt, and other appendages which are usually found in such situations. It will be admitted that the prospect is melancholy and disheartening enough to the eye of taste. The task here will be quite as much to shut out and conceal causes of offence, as to introduce objects of interest and beauty; and yet, though difficult, both may be fairly done. A friend of ours has admirably met the untoward circumstances of such a position. The dust-bin and its associates he has shut out of sight with a neat trellis. On each side of the top of the wall he has had a wooden scantling, painted green, fixed all along the top of the wall, capable of holding three or four inches of mould—a continuous box, in fact, of which the wall forms the bottom—wherein are planted wallflowers, snapdragon, moneywort, stonecrop, and other subjects suited to flourish in such situations. Consequently, the top of the wall is always gay. At the foot he has constructed a border of clinkers, flints, quaint roots, and so on, furnished with appropriate plants, and from which different sorts of ivies and close-growing climbers—"clingers" would be a more expressive term—are made to completely cover up the obnoxious bricks.

We have also seen another way of concealing, or rather, perhaps, of utilizing walls, involving a kind of aerial application of the plunging system. At sufficient distance from the wall, to allow pots to be dropped in, somewhat after the fashion of hat-rails in railway carriages, two or three iron rods, at suitable distances apart, were fixed all round the garden. These were kept full of different plants in pots throughout the season, being changed for others as they passed out of bloom. It must be admitted that the area was not large, and that there were copious appliances for striking and forcing a stock of plants close at hand.

The ordinary galvanized wire net, with a strong rod at top and



bottom, makes an easily-fixed and effective foundation for training objects against a wall. A good deal may be done towards hiding and improving objectionable corners by an ingenious application of the new material, virgin cork. The use of this article, however, has so much extended that the subject would form a long paper of itself.

By way of parting advice for suburban horticulturists, we would say that, *cæteris paribus*, always prefer a dwelling with some sort of garden, and that, if possible, with separating partitions of open work instead of blocks of bricks.

## PLANTS IN POTS.

NOTES FOR AMATEURS ON THE CULTIVATION OF PLANTS IN POTS.

### IN TWO PARTS.—PART II.

**P**ROPGATING by seeds and cuttings will be part of the regular routine work, and the amateur who loves plant growing will be ambitious of distinction in this part of the business. It must be confessed, however, that to take a young plant from the hands of a nurseryman, and by careful management develop its full capabilities, so that in due time—it may be but a few months or it may be many years—that plant shall have become a noble specimen, is a task far more worthy of an amateur's ambition. We can always buy plants to begin with, but we must acquire by patience and perseverance the skill requisite to the development of their beauties. One of the first requisites to success in the multiplication of plants is a propagating house or pit. It is customary to enclose, by means of a glass screen, a small portion of the warmest end of a stove or greenhouse for this purpose, and to ensure bottom-heat by means of a shallow tank covered with slates, the water in the tank being heated by conducting it through the flow-pipe at the point where the latter is connected with the boiler. But almost any amount of propagating may be done without any special arrangement of this sort, especially in a garden where a hotbed is made up in spring, and advantage is taken of the natural heat of the earth in the later portion of the summer season. Frames and pits are valuable auxiliaries to the greenhouse, and, indeed, there can be but little done without them where soft-wooded plants, notable for an abundant production of flowers, are held in favour. The grower of hard-wooded plants and succulents will have much less need of them. Hand lights, bell glasses, and the propagating boxes made of cheap tile-ware, may be rendered serviceable at all seasons of the year in the multiplication of plants, and the enthusiastic plant-grower will soon learn how to make them repay their cost a dozen times over every year. The necessity for such contrivances arises out of the fact that a moist, warm soil, and a still, moist, warm atmosphere, are peculiarly favourable to the germination of seeds, and the rooting of cuttings, and if the amateur will always bear this fact in mind, the business of pro-

pagating will be no longer a perplexity and a worry, but one of the most delightful amusements.

In sowing seeds select the compost in which it is recommended the plants should be grown, and add about a fourth part of its bulk of sand to it. Shallow pans are useful things for seeds, but wooden boxes answer equally well. The depth seeds are sown is regulated by their sizes : those as large as a pea may be fully one inch deep, and those of smaller size in proportion. It is of the utmost importance, however, for the amateur to bear in mind that small seeds of all kinds should be covered with the merest dusting of soil, for many are lost through being sown too deep. It is good practice to lay a square of glass over a seed pan when the seed is sown, to prevent evaporation, because, if the soil is sufficiently moist when the sowing takes place, it will continue so until the seeds germinate if covered with glass, and thus the necessity of watering will be obviated. If you cannot cover the pans with glass, sprinkle a little clean moss over, or lay a sheet of paper over, and be sure to remove the moss or paper as soon as the sprouting of the seed is visible. When the little plants have grown sufficiently large to bear separation they must be potted two or three together, or separately in small pots, or they may be pricked out into boxes, with a view to a separate potting at the next stage.

By far the largest proportion of greenhouse plants are raised from cuttings, and in the case of soft-wooded plants, the process is so simple, sure, and speedy, that there need be but little said about it. As a rule it is a difficult matter to strike cuttings of hard-wooded plants, but the compensation for the difficulty is found in the fact that no one is in want of large quantities of such plants, and as well-made young heaths and such like can be purchased at a very low price, the propagating business need not stand in the way of the formation and good keeping of a pretty collection. The amateur must begin practice with plants of soft texture, such as fuchsias, pelargoniums, and veronicas. Any of the young shoots of these may be made into cuttings at any time of the year. Preference should be given to shoots that are somewhat firm, but still in a growing state. In the case of fuchsias, they may be broken off at the joint by a slight pressure of the thumb, the shoot having its own "heel," and its removal causing a slight scar on the parent stem. If you cannot do this dexterously cut the shoots with a sharp knife, and in every case let the cuttings be from two to four inches long, and remove from them a few of the lowest leaves, so as to secure a sufficient length of clear stem to insert them firmly in the soil. The more leaves a cutting can carry and keep the better, but there must be no leaves buried in the soil, and any leaves that "flag" or droop from exhaustion, will do more harm than good. Cuttings are usually put in sand first, and as soon as they begin to form roots are taken out and potted in light compost. This is not always necessary, especially in summer time, when quick-rooting cuttings may be put singly in small pots in proper compost, and will at once make plants and occasion very little trouble. It may always be known when cuttings are throwing out roots, as their tops become

greener, and begin to grow simultaneously with the emission of roots from the base. Then they should have a little more air and light to prepare them for the life they are to lead as independent plants. A cheap propagating frame may be extemporized by fitting together two flower-pots and filling the space between them with moss or sand, and then fitting a bell-glass over. This plan answers well for hard-wooded plants, which are very slow in making roots, and are apt therefore to be neglected, and, perhaps, occasionally forgotten.

The multiplication of stemless plants, such as the cineraria and primula, is accomplished by division of the root where named varieties are required, but when the cultivator has no wish to keep a named collection, and desires only to have plenty of gay flowers, seeds are to be preferred. In dividing these herbaceous plants, the "stool" is cut through so as to divide it into as many plants as it has centres of growth, each portion having a few roots attached. The best way to learn the art is to practise on stools of chrysanthemums in spring, for they are easy to divide, and the destruction of a few by unskilful handling will not entail a serious loss.

A considerable number of useful plants may be propagated from leaves, and the practice is of great value when it is desired to obtain stock of an expensive variety. In the case of begonias and coleus, which may be increased in this way, the leaves are merely laid on a surface of moist sand, and kept in their places with little wooden pegs. Sometimes the leaves are clipped partly across by a pair of scissors to hasten the production of roots and buds. In the case of several succulents, such as echeverias, the leaves are removed so as to leave a clean scar on the stem, and are fixed with their bases on or in a surface of sand by driving a little peg through them. The time to remove the leaves for the purpose is when they are "ripe," that is full grown, quite mature, but not yet showing signs of decay.

CULTIVATION consists in providing at every stage of the life of a plant conditions favourable to increase of the individuals or full development in any form desired (and possible) of individual specimens. The treatment to which the principal groups or classes of plants are to be subjected for the attainment of these ends will be described in the papers to follow, but a few important generalities may be usefully disposed of now. In any and every case it is well to wait until a plant has filled with its roots the pot it occupies, before shifting it into one of a larger size. In any and every case it is well to "stop," that is, pinch the points of the shoots, or prune with the knife, some little time before the shift is made, and to give the shift when the new shoots that the stopping process has caused the plant to produce have grown about half an inch or so. In other words, never stop and shift at the same time. A "large shift" means transferring the plant to a pot two or three sizes larger than the one it occupied before the shift. This practice is followed with advantage in the case of fast-growing and free-rooting plants of soft texture, such as the hydrangea, for example. A "small shift" means transferring to a pot only one size larger, and is the only safe practice with slow-growing plants of hard texture,

such as the erica. The amateur is advised to practise small shifts until some experience has been acquired, for if a plant does not quickly fill its pot with roots, it is apt to grow smaller instead of larger. Reasons could be given for all these directions, but if we begin to philosophize, we may not only waste time and space, but be tempted to indulge in essay writing.

THE INSECTS AND DISEASES that injure, and not unfrequently destroy plants, may be kept at bay to a wonderful extent by good cultivation. As a rule, the appearance of green-fly, red spider, scale, or mildew, is an evidence of debility in the plant—it may be through too much or too little food; it may be through too much or too little heat; it may be through downright neglect of the most ordinary rules of cultivation. The best remedial agents are air, water, and light; but in aid of these we are compelled occasionally to employ tobacco, soap, sulphur, lime, charcoal, soot, and patent preparations, made of no one knows what. A slight dusting with tobacco-powder will generally make an end of green-fly, or aphids, without harm to the leaves dusted; but when all the plants in a house are covered, it will be well to fumigate, and any machine will answer the purpose that will quickly diffuse an impenetrable cloud of cool smoke, the fuel being the strongest shag tobacco. The little mite called “red spider” usually appears where the stock is kept too hot and too dry. Hence atmospheric moisture and a good watering of the roots of the plants will generally dispose of him to the satisfaction and advantage of the atmosphere. But if a medical agent is wanted, provide some means of *slowly* diffusing the fumes of sulphur, and you will settle him certainly. But beware; for if you diffuse sulphur flames rapidly, whether by the aid of burning coals or otherwise, you will probably kill all the plants in the house. The safe way, if the fire is going, is to paint the pipes with a mixture of clay and sulphur, and if the fire is not going, it is best to fumigate. Before fumigating, the plants should be quite dry, and the house closely shut. Make so much smoke that you can see nothing, and thus leave the matter until the following morning, when the whole stock should be well syringed with soft water, and an hour afterwards air should be given. Slight dustings of flowers of sulphur will usually destroy the mildew. Now for an experiment which will teach you more than a library of books on the subject of vermin. In the month of April get a lot of old plants of *Solanum capsicastrum* or *S. pseudo-capsicum*, and shut them up close in a warm sunny house, and for three weeks starve them within an inch of their lives—they must have a little water or they will die and spoil the experiment. If carefully starved and heartily humbugged, they will in the course of three weeks become horribly infested with green-fly. On the first mild dull day in the month of May plant them out in a rich mellow soil in a sunny spot, give them a good watering, and forget them. Some time in June look at them and you will be surprised and delighted, for they will be making a free, healthy growth, and there will not be left a fly on them. If you perceive the philosophy of the case you will not need much instruction on the subject of greenhouse vermin.

S. H.



## THE GOETHE PLANT.



MAY I be allowed to draw the attention of your town readers to a very interesting and graceful plant, that has now for some years past been much employed for indoor decoration in Germany, and which is at present beginning to attract the attention of English amateurs. I mean the *Clorophytum Sternbergianum*, or Goethe Plant as it is called on the Continent.

A description is given of it by Goethe in a letter dated Weimar, 1828, which is quoted by Miss Hope in a most interesting article in the *Gardener's Chronicle* of January 11th, 1873, to which I beg to refer your more scientific readers.

Goethe says he found it in the Grand Ducal Gardens at Belvedere near Weimar; but it seems to have been first described by Count Sternberg, after whom it receives its name.

It is an Anthericum, and therefore of the lily tribe, and is supposed to be a native of the Cape of Good Hope.

In appearance it is a graceful, grassy-looking plant, not unlike in foliage to the Day Lily, though on a much smaller scale. A large plant of it would be perhaps best described by imagining tufts of the common wild ribbon-grass strung together at intervals of a foot apart between the tufts. These hanging down, and trailing in all directions, make a tangle of a lovely, soft green that is most refreshing to eyes wearied with the heat and dust of a London summer. A drawing is published with the above-named article, taken from a photograph of the plant in Miss Hope's possession, but it gives no idea of the great beauty of the *Clorophytum Sternbergianum* when it has attained its full growth and vigour, and is really a good specimen plant.

It grows in the way of strawberries and the *Saxifraga sarmentosa*, viz., a parent plant with an endless number of runners, these in their turn having offshoots again springing out of them. The finest specimen I have ever seen was placed in the corner of a drawing-room in Germany, and drooped over a wire stand of about four feet high; the parent plant stood in a good-sized pot on the topmost tier of the stand, all of which was quite hidden by the green cascade of plantlets trailing to the floor. The effect of the whole, with its small, feathery blossoms, was extremely beautiful. Now, the great advantage of the Goethe Plant to amateurs lies in the fact that it flourishes with very little light, and really seems to prefer want of air; in fact, most people kill their plants by putting them out in the wind. Mine thrived admirably in London *till put out*; it was originally a little offset given me in Germany by the lady who owned the large plant just mentioned, and it had cheerfully travelled about with me for weeks, with an occasional airing, just wrapped in a piece of damp flannel. When at last it arrived in town, though the outer leaves were damping off and it looked suspicious about the crown; still it was not dead, and when gently planted in a mixture of leaf-mould and sandy loam it soon picked up its looks. At first it was kept rather dry till it was established and showed unmistak-

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able signs of growing, then I made the common mistake of putting it near a constantly opened window ; but here it was not happy and did not do well ; then, as it was found to be in the way in this place, it was removed to a side table, where it had very little direct light, and was half forgotten ; with this treatment it began to thrive splendidly, and grew into a really good plant.

Now came the season for leaving town, and I soon heard that "the lily" had been taken downstairs for safe keeping. This news was not reassuring ; but still, if left alone upstairs, it seemed probable the poor plant might suffer from neglect. Then I heard to my dismay that "the lily" having begun to grow sickly, though carefully given all the air they could, had at last been put out altogether for its greater well-being, and before I could come to its rescue my poor plant, my little hero of a hundred fights, was dead.

The editor of the *Gardener's Chronicle*, in a note appended to Miss Hope's article, says the Goethe plant is common in the nurseries. I have never myself been able to meet with it, no doubt owing to my not having known its scientific name ; but let me urge any of your readers who are in the habit of making a kind of friend of their plants to try the *Clorophytum Sterbergianum*, for as a cheery example of ever-varying interest it is certainly unequalled. Only let beginners beware of cutting off the shabby, awkward-looking stems that will crop up in all directions as soon as the plant is well established ; *on these the young plants grow*. As far as I can recollect, there comes first a sort of scaly or sheathlike leaflet, then little warty-looking rootlets underneath, these grow into small fleshy aërial roots as the leaves grow to a tuft above them, and weigh down the stem into its proper place ; should, however, the little plant touch soil anywhere and begin to strike into it, the fleshy aërial roots change their character and become fibrous. Every now and then the plant should be sprinkled overhead with a brush dipped in water, while the roots should be kept moderately damp ; watering must depend on the temperature of the room, and in frosty weather it is dangerous to let it get wet, otherwise it is not all particular as to its treatment, always excepting draught or wind.

The flowers, although interesting and adding much to the general beauty of the plant, do not attract much attention. They are rather tall, feathery, and insignificant as to size and colour, but still give a lightness and grace to the whole.

The Goethe plant would be beautiful on the stage of a conservatory by allowing the runners to trail amongst and hide the pots of other subjects, and it has a fine effect indoors mixed with ferns, tulips, and other spring bulbs, giving them the appearance of growing out of grass. These, later in the season, could be changed for gladioli, etc., which also have a fine effect. However arranged as to detail, the grand charm of the Goethe plant will always be its adaptability for drawing-room decoration.

H. R.

[Having grown this plant many years under the name of *Cordylina vivipara*, we can testify that it loves a partial light and a still atmosphere, and, consequently, is well-adapted for growing in a room ; but we cannot agree with Miss Hope or her friend H. R. in their praise of its beauty, and the figure in the *Chronicle* does not say much for it.—ED. F.W.]

## THE GENIAL CLIMATE OF WORTHING.

BY CHARLES HENRY HAINES,

Gardener to C. A. Elliot, Esq., The Elms, Broadwater, near Worthing.



HAVING observed in your valuable journal of last month, an article respecting the geniality of Worthing and the Isle of Wight, and having lived at the former place for two winters, I feel I cannot refrain offering a few remarks upon the subject, trusting they may prove interesting to your readers.

Although I cannot enumerate all the plants made mention of by S. H., I am sure I can do sufficient to confirm its authenticity. The first subject worthy of note is the *Ilex latifolia*, of which many fine specimens may be seen throughout Worthing and its environs; but more noticeable is the *Euonymus*, which with its young foliage at this season presents a most beautiful aspect, forming huge masses of golden-yellow, green, and other distinct colours. The *Gynerium*, though not so prevalent as the *Euonymus*, grows here to perfection, a noble specimen in our grounds I think worthy of note, the plumes of which averaged before cut, from nine to ten feet high, and the plant of proportionate size. The *Arbutus*, too, attains a great height, and appears quite hardy, as also *Myrtles*, *Veronicas*, and other things equally beautiful, and generally regarded as tender.

The following are immediately under my notice, in thoroughly exposed positions, viz., *Desfontania spinosa*, *Aralia* *Eugenia Ugni*, *Solanum capsicastrum*, *Agave Americana*, and indeed, *Geraniums*, where I left them in the ground by way of experiment. I find they are not only living, but breaking well with young foliage. Last summer I observed in many instances fine clumps of *Calceolaria* (Trentham Hybrid), in the front of villas, cottages, etc., in full bloom; upon inquiries, I found they had been where they were from two to three years, and are now looking promising for a good display next season. I must also state that several beds of *Heartsease*, in conjunction with *Veronicas*, have supplied us with a good succession of bloom throughout the winter. I think, with the above remark, sufficient has been said to convince your readers of the geniality of this spot. No doubt many plants which are now treated as greenhouse ones, may be introduced into our gardens; at all events, I trust that another winter will prove an experimental one in this locality, and in many another similarly favoured.

## GARDEN PLANTS OF THE NORTH-EAST OF IRELAND.



HAVING read your article on "Beautiful Trees for Kind Climates" in the March number of the FLORAL WORLD, I would like to give you a few instances of the open-air culture of delicate plants, not usually met with in the climate of the British Isles. Being a resident in the north of Ireland for many years, and being very devoted to

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botany in all its branches, I have always remarked and made notes of anything out of the common, in the growth of plants. First, I shall take the line of coast reaching from Larne to the Giant's Causeway, and extending, I should say, two miles inland; we meet with plants commonly to be seen in greenhouses, there growing in luxuriance in the open air, both winter and summer. Amongst these are the *Clanthus*, a plant of which covers the side of a house, height about twelve feet, and continuing to grow rapidly; and not only is it covered with its gorgeous scarlet blossoms, like boiled lobster's claws, but bears pods in which the seeds ripen. In this same locality *Desfontania spinosa* flourishes, and blossoms equally well, and all the varieties of *Veronicas* grow like laurels, sowing seeds in profusion, from which young plants spring. *V. Meldensis* in my own garden last year flowered from the autumn until late in the spring, and was commented on by various people. I could also give instances of *Escallonia rubra*, *E. macrantha*, *Rhododendron hirsutum*, *Myrtles*, *Sweet-scented Verbena*, *Yuccas*, which attain a large size, and flower profusely. *Arbutus* and *Bay* also flourish. Bedding plants such as *Geraniums*, *Pelargoniums*, *Calceolarias*, *Gazanias*, etc., remain out during the winter. But the most remarkable instance of a delicate plant standing severe winters, is that of a *common Heliotrope*, which for the last nine years has remained out of doors dying down each winter, and springing up each summer; it grows close to a house, south aspect, nine miles from the sea, in the county Louth, the only protection used is coal-ashes, and that only in case of a very severe frost. Other plants struck from this one have been tried frequently, but without success. Should your readers care for more instances at some future time, I may be able to give some, being a keen observer of nature.

S. A. B.

[We cannot have too many such instances, provided, of course, they relate to plants that are really beautiful, interesting, and more or less difficult to manage, in some localities.—ED. F. W.]

## MAY WORK IN THE KITCHEN GARDEN.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



THE season being considerably later than usual, much work that should have been done in April now remains to be done, and much thoughtfulness and activity will be necessary to keep the work well in hand and prevent anything like a break in the supply of vegetables hereafter.

One of the first and most important matters is that of seed sowing. The main crops of kales and winter greens generally were, of course, sown last month, and the plants are now well up; but there are several



crops for autumn use, and a few for the winter, which must be sown without delay, or the supply will be short at the time it is required. One of the most important crops to be sown early in the month is that of the Broccolis for winter and spring use. Very frequently the early part of March is recommended for sowing the seed of these vegetables; but excepting for the early varieties which are required in the autumn, the first week in May will be quite soon enough. When sown early the plants are frequently crippled with the cold weather usually experienced during the spring, and sometimes they receive considerable injury through remaining too long in the seed-bed. Broccolis are not the only vegetables which suffer from the last-mentioned cause, and it should be distinctly understood that no useful purpose whatever is served by having plants ready for putting out a month or six weeks before the ground is ready for them.

The seed may be sown in small beds, but for small gardens one large bed may be marked out and the seed sown in drills, one or two drills being devoted to each variety according to the number of plants likely to be required.

Lettuce for furnishing the principal supply during the end of the summer and the early part of the autumn should also be sown, the seed of these also may be sown and the plants transplanted when the quarter is ready for them; but, where the ground can be spared, sowing the seed where the plants are to remain is decidedly preferable, the labour of transplanting will be avoided, and the plants will remain longer before running to seed. In a season like the present, and on naturally cool soils, it is not of so much importance to sow the seed where the plants are to remain as it is in dry seasons and on hot sandy soils.

Other crops that may be sown now are Cauliflowers for autumn use, Cucumbers for ridges, Endive for early use, Dwarf French and Runner Beans for main crops, Peas for late crops; Vegetable Marrows for main crops, and Turnips for main crops; small salading may also be sown for successional supplies.

Planting out the various crops raised from seed sown early in April and towards the end of March will also form a large proportion of the work in the kitchen garden during the month of May. The young plants suffer severely when they remain crowding in the seed-beds too long, therefore every endeavour must be made to have the quarters in readiness by the time they have acquired sufficient strength to admit of their being transplanted safely. It is especially necessary to transplant Lettuce as early as possible, for they are soon useless if they are too much crowded in the seed-bed. Cabbage, Cauliflowers, and Kales may be transplanted into temporary beds where the quarters will not be ready for them; put them about four inches apart each way, and when so prepared they will be in splendid condition for filling vacant plots after potatoes; in all cases the plants should be lifted out of the bed with the aid of a small fork or trowel, for when drawn out without the soil being loosened in any way a very large proportion of the fibrous roots will be either broken off or injured. Dull weather must be taken advantage of for all transplanting operations, and, as far as possible, the

plants should be put out just before a shower instead of just after a period of wet weather.

Weeds are now growing apace, and the hoe must be plied vigorously to keep them down. If, at this season of the year, they are allowed to grow unchecked and to flower, the ground will be filled with seed, and in the autumn an immense amount of work will be provided. Bright weather must be taken advantage of for destroying weeds, as they are then dried up before they have a chance of making new roots and becoming established again. It is almost impossible to stir the ground between growing crops too freely at this time of the year where the ground is in proper condition for working. Independent of the roots being exposed more fully to the advantages to be derived from atmospheric influences, the moisture is not dried up so quickly, and a loose surface may be considered as almost equivalent to a mulch of litter or other loose material. Earthing up the Peas and Beans will be of great advantage in affording material support, and it should be done before they are too far advanced.

In sowing Dwarf and other Kidney Beans allow plenty of space between the rows, and also sow the seed thinly, for it is surprising the crops that will be produced from a given space when the plants have ample space for extending on all sides. It is more or less hurtful to all kinds of kitchen-garden crops to overcrowd them. For this reason the beds of carrots, onions, parsnips, turnips, and other root crops, should have careful attention and be thinned out as may appear necessary. It is not desirable to thin the carrots and onions to the fullest extent at first, because of the use to which the thinnings may be put in the kitchen. Spinach is also benefited by thinning, and this should be done by drawing out the surplus plants, a few at a time, and sending them to the kitchen. This is a much better way of securing the first few dishes from each crop than by simply nipping off the leaves from all the plants indiscriminately.

Snails and other pests will now be active, and great vigilance will be necessary to keep them in subjection. One of the best ways of destroying snails is to lay a few lettuce or cabbage leaves down near any bed of seedlings which they are likely to attack: they will take shelter under these during the day, and may then be caught and destroyed. Newly-slaked lime in a powdery state sprinkled about the plants to which they are partial will keep them somewhat in check; but there is nothing like destroying them in the manner indicated above.

The turnip-fly, which in dry weather does so much injury to turnips, and to cabbage, broccolis, and other members of the same family, just as they are pushing through the ground, may be held in check by dusting soot over the beds; this should be done before even the plants can be seen, for not unfrequently the fly eats the plants just as they are pushing through the soil, and therefore before much can be seen of them; the dustings must be repeated until the plants are in their rough leaf, and the morning is the best time for applying the soot.

## GARDEN GUIDE FOR MAY.

**KITCHEN GARDEN.**—Vegetable marrows, cucumbers, and melons may still be sown; the latter require the most heat, and cannot be well fruited unless they can enjoy a temperature of  $70^{\circ}$  to  $80^{\circ}$ , and five more degrees of bottom-heat. Pumpkins and gourds of all kinds, as well as Stockwood, Southgate, and short prickly cucumbers, may be grown to great perfection in the open air, by starting the seeds in a gentle heat, and when the plants have formed their rough leaves, turning them out on a bed of dung or loam well enriched, and giving them the protection of hand-glasses for the first fortnight. Those who have no hand-glasses should protect them every night till June, by turning over each plant a flower-pot with the hole stopped. Ridge cucumbers bear well, and give little trouble; the simplest way of growing them is to cut a trench three feet wide and two feet deep, and fill this with any littery rubbish in a fermenting state; long, half-fermented dung is, of course, the best. Soil it over nine inches deep with the stuff that was taken out, and then sow in patches of three seeds, eighteen inches apart. Pots or hand-glasses should be put over each patch of seed till they come up, when they should have air by degrees, and protection against night frosts, and to be thinned to the strongest plant in each patch, as soon as they have made their rough leaves. Cucumbers and gourds should not be stopped, but allowed to ramble as they will, either on the ground or a rough trellis. They should have abundance of manure water in dry weather, and the fruit cut as fast as it is ready, as, if one is left to ripen, the vines cease to be prolific. Trenches should now be made for celery, and six inches of rotten dung forked into the bottom of each. A dull or showery day should be chosen to put out the plants, and plenty of water given during dry weather. Sow beet, marrow peas, broad beans, kidney beans, and runners; turnips, lettuce, turnip-radish, and other salads, as required for succession. For successional crops of spinach the prickly sort will be found the best now, as less likely to run during hot, dry weather. Look to seed-beds, and transplant; well hoe and clear the ground as may be necessary. The use of liquid manure and frequent stirring of the ground between growing crops will hasten and improve the growth of all things.

**FLOWER GARDEN.**—We would advise those who have not had much experience in bedding to defer the putting out of their stock till towards the end of the month. There is nothing gained by the attempt to save a week, for we frequently have bitter nights, and north-east winds, even till the last week in May. The middle of the month is the earliest time at which we would put out bedding stock anywhere near London; farther north, we would wait till another fifteen days; but in the south they are always in advance of us Londoners. Successional sowings should be made of all hardy annuals that may be required to succeed those sown in March, and tender kinds, such as asters, zinnias, etc., may now be sown in the open ground. This is a good time to sow hardy and half-hardy perennials

of all kinds, to get strong plants for winter, either to remain out or have the protection of a frame, or to take up and pot for early blooming in the greenhouse. Lovers of the Chinese primula should sow now for the next spring. Late planted roses should have plenty of water, and the surface mulched, and similar treatment given to hollyhocks and chrysanthemums put out last month. Carnations and picotees should be staked without delay, and their shoots thinned. Part and plant polyanthuses and primroses that have done blooming, and give them a rich loam and a shady aspect. Where it is intended to have new gravel, it would be advisable to defer it till the beds are filled, and the whole garden acquiring its full summer gaiety, a coating of fresh gravel then will add much to its fresh and bright appearance.

**GREENHOUSE.**—Continue to strike bedding stock for late blooming. Fuchsias, geraniums, verbenas, and petunias make beautiful specimens for pot-blooming in the autumn, if struck now and kept regularly stopped till July. They should not have a high temperature, fuchsias especially, which like shade and moisture. Cinerarias done blooming should be cut down and planted in rich soil, in a cold frame, to furnish offsets for potting. Camellias and azaleas that have made their young shoots should have a little more ventilation to prepare them to go in the open air next month to ripen their wood. All growing plants, and especially hard-wooded ones, must be regularly stopped, and have plenty of air, to insure a sturdy, short-jointed growth. Early-flowering pelargoniums out of bloom to be cut in and allowed to break before repotting them, and the syringe and fumigator kept in use, as may be necessary, to destroy red-spider and green-fly. Fire-heat should be dispensed with as much as possible, preparatory to clearing and cleaning out the house.

**STOVE.**—Pines must be shaded on bright days, and the soil about them kept regularly moist, and liquid manure used frequently. Suckers should be removed as soon as they make their appearance, except so far as they may be required for stock. Queens never produce good fruit unless the suckers are removed early. Young pines for winter fruiting should be in a rather light soil, to prevent excess of moisture from stagnating about them. Vines that have their roots in inside borders should be liberally supplied with water, and the shoots should be tied in, in good time. Vines in pots will require frequent supplies of liquid manure, and stopping of laterals must be attended to, to regulate the growth. Red-spider must be kept in check by the use of sulphur; and the best method of using it is to paint the pipes with a mixture of sulphur, lime, soot, and water. Examine the bunches occasionally, and thin them regularly, to promote their beauty and the size of the berries. Melons just planted must be kept close and warm till the roots get to work, and then a short-jointed growth should be encouraged by moderate ventilation and abundance of light. Average temperature for pines, 75° at night, 85° to 90° by day; for general collections, 65° to 70° at night, and 75° to 85° by day.

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## HORTICULTURAL AFFAIRS.



**ROYAL HORTICULTURAL SOCIETY.**—EXHIBITION OF ODONTOGLOSSUMS AND CINERARIAS, April 2.—The exhibition held on the above date was exceedingly small, and possessed but few features of special interest. Prizes were offered for *Odontoglossums*, and in the nurserymen's class for six, Messrs. J. Veitch and Sons, Chelsea, and Mr. Bull, also of Chelsea, were first and second respectively. The former had well-flowered specimens of *O. niveum major*, *O. triumphans*, *O. odoratum*, *O. Alexandræ*, *O. Pescatorei*, and *O. phalænopsis*. Mr. Denning, in the amateurs' class, staged neat examples of *O. Alexandræ*, *O. Pescatorei*, and other well-known species. Messrs. Dobson and Son, Isleworth, and Mr. James, Redlees, Isleworth, were the only exhibitors of *Cinerarias*, and the former were most deservedly awarded the first prize in the trade class for nine, and the latter the first prize in the amateurs' class for six. The specimens in both collections were large, well-flowered, and highly-finished. Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, and Mr. Earley, Valentines, Ilford, were first and second respectively in the class for six *Primroses*; and for six bulbous flowers, Mr. Ware was first with neat examples of *Muscari botryoides*, *M. botryoides alba*, *Narcissus hulfocodium*, *Tulipa sylvestris*, a pretty yellow-flowered species, and *Scilla Ugni*, a strong-growing species, with blue flowers. Roses in pots were exhibited in large numbers, and, generally speaking, in fine condition. Several fine boxes of cut blooms were also exhibited. In the group of roses in pots presented by Mr. Bennett, Stapelford, near Wilton, Wilts, occurred examples of Richard Wallace, *Président Thiers*, *Lyonnaise*, and other of the newer kinds. In the collection exhibited by Messrs. Paul and Son, Cheshunt, a fine dark-flowered variety, under the name of *Cheshunt Hybrid*, was conspicuous, and had a most promising appearance. Prizes were offered for six *Clematis*, but the only competitor was Mr. Charles Noble, Bagshot, who presented neat examples well furnished with flowers. Mr. Noble also exhibited a group in the miscellaneous class. The varieties represented were—Albert Victor, Duke of Buccleuch, Estelle Russell, Harry Richmond, Lord Londesborough, Lady Londesborough, Lord Henry Lennox, Lord Napier, Lady Emma Talbot, Mrs. Villiers Lister, Mrs. Howard Vyse, Miss Bateman, Princess Mary, Queen Guinevere. Several new roses were also exhibited by Mr. Bennett, Mr. W. Paul, and Messrs. Paul and Son. Of those sent by the first-mentioned exhibitor, *Lyonnaise*, a hybrid perpetual of a pleasing shade of rose-pink, flowers large and globular, but apparently thin; *Richard Wallace*, deep purple-rose, large, and of splendid form—it belongs to the same class as the preceding, and is remarkable for its finely-shaped blooms and free growth; *Président Thiers*, also a hybrid perpetual, deep carmine, flowers are of medium size, very thin, and exceedingly coarse, as shown; and *Madame Jules Margottin*, a tea rose of a pleasing shade of yellowish salmon, flowers of medium size, likely to be of great value for button-hole bouquets, had first-class certificates conferred upon them.

**ELECTION OF A NEW COUNCIL OF THE ROYAL HORTICULTURAL SOCIETY.**—In accordance with the requisitions presented to the Council, two meetings of Fellows were held at South Kensington on April 4, for the purpose of accepting the resignation of the old Council, and electing a new one. After a rather long and spirited discussion, the new Council was elected, of which the following is a list:—Duke of Buccleuch, K.G., President, H.R.H. Prince Arthur, H.S.H. Duke of Teck, Viscount Bury, M.P., Lord Londesborough, Sir Coutts Lindsay, Bart., Sir Alfred Slade, Bart., Hon. R. W. Chetwynd, T. A. Hardcastle, Esq., M.P., W. A. Lindsay, Esq., Robert Warner, Esq., W. B. Kellock, Esq., Alfred Smea, Esq., F.R.S., Henry Little, Esq., Andrew Murray, Esq., F.R.S.

**INTERNATIONAL HORTICULTURAL EXHIBITION AT THE ALEXANDRA PALACE.**—The great exhibition of horticultural produce at the Alexandra Palace on May 24, and five following days, promises to be one of the grandest affairs of its kind, and to quite put into the shade all the other metropolitan exhibitions to be held during the forthcoming season. In the schedule before us there are no less than eighty-eight classes for plants, horticultural elegancies, and fruit, and in each class the prizes are of the most liberal character.

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POTATOES.—In the first two months of the year, the declared value of potatoes imported was £544,639, and in the same period of 1872 only £35,963. In the month of February, the value was £262,336, against £19,976 in the month of February, 1872.

INTERNATIONAL FRUIT SHOW AT MANCHESTER.—The schedule of prizes offered for competition at the International Exhibition of Fruits, Vegetables, and Flowers, to be held in the Manchester Botanical Gardens in September next, is now issued, and, on the whole, may be considered satisfactory. The prizes for collections of fruits are exceedingly liberal. For twenty dishes the prizes are £30, £20, and £12; for fifteen dishes, £20, £15, and £10; for ten dishes, exclusive of pine-apples, £12, £8, and £5. The prizes are also very good for a collection of hardy fruits. Grapes and other fruits are liberally encouraged, and for grapes alone, prizes amounting, in the aggregate, to £149 are offered.

## TO CORRESPONDENTS.

A. B. S.—Apply to Messrs. Rollison and Sons, the Nurseries, Tooting, Surrey. This is the time to sow *Aucuba* seeds; they will germinate in October. Can you favour us with notes of tender trees and shrubs that prosper in your kind climate?

T. F.—The bee-stand is not made now; there was never any demand for it.

A. Moorman.—Your plant is probably the great Butterfly orchis, *Habenaria chlorantha*. If you will forward your address, we will send your letter on to the gentleman named in it, but without the address it will be of no use to him.

PROFITABLE GREENHOUSE.—Miss H. J.—Everything depends upon the locality and the means which exist for disposing of the produce to the best advantage. Grapes would be more likely to pay than roses. It would, perhaps, be better to have a small house, and grow a few things for amusement only.

CAMELLIA BUDS NOT OPENING.—J. H. E. C.—The roots are out of order, but whether it is due to the soil having been allowed to become dust dry, or whether the soil is in a saturated state, it is, of course, impossible for us to say. If the plant has been in the same pot for several years, as appears to have been the case, a shift into a larger pot will be highly beneficial. Careful watering is of the first importance in the management of camellias. As the buds refuse to open, we should advise their removal without further delay.

PLANTS FOR A STOVE TANK.—A. B. S.—The following are free-growing and highly ornamental subjects:—*Aponogeton distachyon*, *Calla alba maculata*, *Lymnæthemum geminatum*, *L. nymphæoides*, *Lymnocharis Humboldti*, *Nupha lutea*, *Nymphaea cerulea*, *N. cyanea*, *N. odorata*, *N. pygmaea*, *N. rubra*, *Pistia stratiotes*, *Pontederia cordata*, *Trapa natans*, *Vallisneria spiralis*, *Villarsia nymphæoides*, and *V. indica*. *Ouvirandra Berneriana* may also do well in the tank, but the other subjects would, perhaps, soon smother it. It is one of the finest water plants for the stove, but it is best grown in a glass tank by itself, as the beauty of the leaves can then be seen to better advantage.

FERNS.—O. D. A.—No. 1, *Adiantum affine*; No. 2, *Pteris tremula*; No. 3, *Nephrolepis tuberosa*.

ROSES IN POTS.—Guernsey Subscriber.—The roses named, and a large number of other varieties, will do exceedingly well grown in pots, and trained as described. It is, however, better for amateurs to confine themselves to medium-sized plants, which simply require a stake to each branch to support the flower trusses.

DECAYED CALADIUM CORMS.—Will you kindly inform me through the pages of the FLORAL WORLD what the secret is for keeping *Caladium* corms safely during the winter? Seven pots of these plants were removed from the stove in September last, placed on their sides in the greenhouse in a dry warm corner. No water was given to them after their removal, the earth being quite dry, and the corms appeared firm and handsome when examined a little before Christmas. A short time after that I found that three out of the seven had decayed; the others were all right, but within a few weeks they had all gone off. The pots were underneath the water pipes, and I observed that they went off sooner after more heat was

kept up. Perhaps a little moisture would have saved them, or were they too suddenly dried off? I have a very good gardener, and he cannot understand why we have lost our *Caladiums*. I should feel greatly obliged by a few remarks from your valuable pen. Will you also kindly inform me whether *Thunbergia Harrisii* is a plant fit for exhibition, and when it blooms? It has blue, bell-shaped, flowers, I am told.—*H. Lukis, Cardiff*. [The "secret," if it may be so designated, of keeping the corms of *Caladiums* safely when at rest during the winter season, consists in placing them in the stove. The cause of the corms perishing in the manner stated was insufficiency of heat, and they ought not to have been placed in the greenhouse at all. They were, no doubt, dried off too quickly, but even had they been dried off in the most careful manner, they would have perished from the treatment they subsequently received. Some diversity of opinion exists amongst the best growers as to whether the soil should be kept rather moist or dust dry. A moderate degree of moisture in the soil is undoubtedly preferable, but it is safer to allow it to become dust dry than to apply water after the foliage has perished. Some growers overcome this difficulty by laying the pots upon their sides, and then sprinkling the sides of the pots rather liberally. Other growers stand the pots upright, place a layer of moss upon the surface of the soil, and keep the moss moist by frequently sprinkling it. The temperature of the structure in which they are wintered should not be less than 60°, but they will be safer with a temperature five or ten degrees higher. The *Thunbergia* usually blooms during the autumn and winter months, and is better adapted for training up pillars, and over the roof of the stove than as a specimen plant for exhibition purposes.]

**HARD-WOODED PLANTS FOR THE GREENHOUSE.**—*B. R.*—The following would form a good and complete collection:—*Abutilon* Duc de Malakoff, *A. venosum*, *Acacia armata*, *A. Drummondii*, *A. grandis*, *A. longifolia magnifica*, *A. platyptera*, *A. pubescens*, *A. pulchella*, *Acrophyllum venosum*, *Adenanda fragrans*, *A. speciosa*, *Andromeda formosa*, *Aphelaxis humilis*, *A. macrantha purpurea*, *A. rupestris grandiflora*, *Beaufortia purpurea*, *Begonia Boliviensis*, *B. Martini (diversifolia)*, *B. rosæflora*, *B. Veitchii*, *Blandfordia aurea*, *B. Cunninghamii*, *B. flammea*, *B. nobilis*, *Boronia Drummondii*, *B. pinnata*, *B. serrulata*, *Brugmansia Knightii*, *B. suaveolens*, *Burchellia capensis*, *Cantua dependens*, *Cassia corymbosa*, *Chirona frutescens*, *Chorozema cordata splendens*, *C. Henchmannii*, *C. Lawrenceana*, *C. varia Chandleri*, *C. varia nana*, *Clianthus Dampieri*, *C. punicens*, *Clivea nobilis*, *Coleonema rubra*, *Coronilla glauca*, *Correa Brilliant*, *C. cardinalis*, *C. Harrisii*, *C. magnifica*, *C. speciosa ventricosa*, *Crowea saligna*, *C. stricta*, *Cytisus Atleeana*, *C. racemosa*, *C. Everestiana*, *Daphne indica alba*, *D. indica rubra*, *Dillwynia Drummondii*, *D. splendens*, *Dracophyllum gracile*, *Embothrium coccineum*, *Eriostemon buxifolium*, *E. intermedium*, *E. nerifolium*, *E. pulchellum*, *Erythrina cristagalli*, *E. floribunda*, *Emaria Belanger*, *Eupatorium odoratum*, *E. riparum*, *Gastrolobium Drummondii*, *G. Hendersonii*, *Gastromema sanguinea*, *Genetyllis Hookeri*, *G. tulipifera*, *Gompholobium polymorphum splendens*, *Hovea celsi*, *H. pungens major*, *Imatophyllum cyrtanthæiflorum*, *I. miniatum*, *Indigofera decora*, *I. floribunda*, *Kalasantos coccinea superba*, *K. Madame Celeste Wynans*, *K. Phoenix*, *K. miniata grandiflora*, *Leptospermum bulbatum*, *L. grandiflorum*, *Leschenaultia Baxteri major*, *L. biloba grandiflora*, *L. formosa*, *L. splendens*, *Leucopogon Cunninghamii*, *Libonia floribunda*, *Linum flavum*, *L. trigynum*, *Luculia gratissima*, *Magnolia fuscata*, *M. Lenne*, *Mirabella Baxteri*, *Mitraria coccinea*, *Monochætum ensiferum*, *M. Lemoineanum*, *M. sericeum multiflorum*, *Myrtus communis angustifolium*, *M. communis latifolium*, *Nerium album plenum*, *N. rubrum plenum*, *N. splendens giganteum*, *Olea fragrans*, *Oxylobium Browni*, *O. Osborni*, *Phænocoma prolifera Barnesii*, *Pimelia decussata*, *P. elegans*, *P. Hendersonii*, *P. mirabilis*, *P. spectabilis*, *Pleroma elegans*, *P. sarmentosa*, *Podolobium elegans*, *P. Hugeli*, *Polygala cordata*, *P. Dalmaisiana*, *P. oppositifolia*, *P. Pultenæa retusa*, *P. punica granatum*, *Richardia æthiopica*, *R. alb. maculata*, *Statice Helfordi*, *S. macrophylla*, *S. profusa*, *Swainsonia Greyana*, *S. lessertifolia*, *S. Osborni*, *S. purpurea*, *Tetratheca ericoides*, *T. hirsuta*, *Thea Bohea*, *Thibaudia macrantha*, *T. pulchra*, *Vaccinium erythrinum*, *V. Rollissonii*.

**AZALEAS.**—*G. H.*—The following are all good:—*A. Borsig*, *Admiration*, *Andersoni*, *Antoinette Thelmann*, *Beauty of Reigate*, *Bouquet de Roses*, *Charmer*, *Comte de Hainaut*, *Coquette de Gand*, *Distinction*, *Dominique Vervaene*, *Duc de Nassau*, *Duchesse Adelaide de Nassau*, *Etoile de Gand*, *Fascination*, *Flag of Truce*, *Flower of the Day*, *Forget-me-not*, *Francois Devos*, *Grande Duchesse de Bade*, *Guillaume III.*, *Her Majesty*, *Imperialis*, *Juliana*, *La Victoire*, *Leopold I.*, *Le*



Superbe, Lizzie, Madame Alex. Hardy, Madame Alex. van Langenhove, Madame Camille van Langenhove, Madame de Cannaert d'Hamale, Madame Dominique Vervaeke, Madame Iris Lefebvre, Madame Léon Maenhaut, Madame Louis van Houtte, Madame van der Cruyssen, Madlle. Léonie van Houtte, Madlle. Marie van Hontte, Président A. Verschaffelt, Président Humann, Prince Albert, Prince of Orange, Queen of Roses, Reine Blanche, Rubens, Souvenir de Prince Albert, Stanleyana, Stella, Vivid.

**CAMELLIAS.**—*F. S.*—The undermentioned are all first-class:—Alba plena, A. J. Downing, Arch-Duc Etienne, Arch-Duchesse Augusta, Bella Romano, Commendatore Betti, Chandleri elegans, Countess Corradino, Countess of Derby, Countess of Orkney, Duchesse de Nassau, Duchesse d'Orléans, Donckelaari, Elvira Bianchini, Emilia Gavazzi, Fra Arnaldo de Brescia, General Cialdini, Giardino Schmitz, Grandis, Henri Favre, Imbricata, Il Tramonto, Jenny Lind, Jubilee, Lavinia Maggi, Leopold I., Madame Ambroise Verschaffelt, Marchioness of Exeter, Mathotiana, Matteo Malfino, Monsieur d'Offey, Mrs. Dombrain, Napoleon III., Nonpareil, Ochroleuca, Princess Mary, Princess Baciocchi, Queen of Beauties, Reine Marie-Henriette, Rubens, Saccoi Nova, Storeyi, Targioni, Tricolor imbricata plena, Valtearedo, Vicomte de Nieuport, Wilderi, Zoraide Vanzi.

**ERICAS.**—*H.*—Actoniana, Actoniava Turnbulli, Amabilis floribunda, Ampullacea, Ampullacea elegans, Ampullacea vittata, Aristata major, Austiniava, Campanulata, Candolleana, Cavendishiana, Colorans, Depressa multiflora, Devoniana, Elegans, Eweriana superba eximea, Fairreana, Favoides elegans, Ferruginea, Gracilis autumnalis, Gracilis vernalis, Hybrida Ilyemalis, Intermedia, Jacksoni pallida, Jasminiflora alba, Lambertiana, Mammosa major, Marnockiana, Obbata, Parmen-tieriana rosea, Retorta major, Shannoniana, Tricolor coronata, Tricolor elegans, Tricolor impressa, Tricolor Wilsoni, Turnbulli, Ventricosa Bothwelliana, Ventricosa coccinea minor, Ventricosa superba, Vestita rosea, Willmoreana.

**RHODODENDRONS.**—*B.*—Album, Arboreum, Barbatum, Brooki gracilis, Cato-phylum, Ciliatum, Countess of Haddington, Dennisoni, Edgeworthi, Formosum splendens, Gibsoni, Jasminiflorum, Javanicum, M'Nabi, Princess Alice, Princess Alexandra, Princess Helena, Princess Royal, Prince of Wales, Retnsnm, Veitchianum.

**EPACRIS.**—*E.*—Alba odorata, Campanulata rubra grandiflora, Carminata coccinea major, Delicata, Eclipse, Exquisite, Grandiflora rubra, Hyacinthiflora, Hyacinthiflora candidissima, Hyacinthiflora carminata, Hyacinthiflora fulgens, Impressa alba, Impressa carnea, Lady Alice Peel, Lady Panmure, Lucifer, Miniata splendens, Mont Blanc, Mrs. Pym, Princess Royal, Queen Victoria, Rosea elegans, the Bride, Viscountess Hill.

**CLIMBING PLANTS FOR THE ROOF AND PILLARS OF THE CONSERVATORY.**—

*W. M.*—Acacia dealbata, A. pubescens, A. Riceana, Bignonia grandiflora, B. speciosa, Clematis lanuginosa pallida, C. Star of India Alexandra, C. Miss Bateman, C. John Gould Veitch, C. Jackmanni, C. Prince of Wales, Mrs. James Bateman, C. Lady Londesborough, Lord Londesborough, Cobæa scandens variegata, Gompholobium polymorphum splendens, Habrothamnus elegans, Kennedya coccinea, K. monophylla, K. rubicunda, Jasminum grandiflorum, Lapageria albiflora, L. rosea, Lophospermum Hendersoni, Mandevillea suaveolens, Passiflora Impératrice Eugénie, P. Lawsoni, P. racemosa cœrulea, Plumbago capensis, Rbynchospermum jasminoides, Solanum jasminoides, Solya Drummondii, Tacsonia eriantha, T. mollissima, T. Van Volxemi, Tecoma jasminoides alba magna, T. j. rosea, Solanum jasminoides, Tropæolum Cooperi, T. Crimson Model.

**VARIEGATED PLANTS.**—*K. M.*—Abutilon Thompsoni, A. vexillarium variegatum, Aralia reticulata, A. Sieboldi aurea variegata, A. S. argentea variegata, Agave americana aurea variegata, A. a. variegata, Bambusa Fortunei variegata, Citrus aurantiacus variegatus, C. argenteus variegatus, Clethera arborea variegata, Coprosma Bauertiana variegata, Coronilla glauca variegata, Dracæna Guilloylei, Elæagnus japonicus variegatus, Eurya japonica latifolia variegata, Myrtus angustifolius variegatus, M. communis variegatus, Hydrangea japonica argentea variegata, H. japonica aurea variegata, Nerium Oleander variegatum, Osmanthus ilicifolius variegatus anreus, Phormium Colensoi, P. tenax variegatum, P. Cooki, P. Veitchi variegata, Smilax maculata, Veronica Andersoni variegata, V. alba marginata, Yucca aloifolia variegata, Y. filamentosa variegata, Y. quadricolor.







## YELLOW ROSES.

*(With Coloured Illustration of Perle de Lyon.)*

HERE are more yellow flowers than of any other colour, and yet we prize yellow roses above all other roses, and take considerable care to insure their plentiful production and perfect development. The *blue* rose is at present a "fancy flower," a thing of the imagination, hoped for, and indeed expected by rosarians who take superficial views of the workings of nature, but by such as have observed with intelligent eyes, it is generally agreed that there is no reasonable prospect of the production of a blue rose at any time or anywhere except in the dream of an enthusiast. Our friend, Mr. W. D. Prior, astonished the world once on a time by announcing his possession of a glorious rose of royal blue, but we soon discovered that he had seen it with the mind's eye only as—

"——— a false creation,  
Proceeding from the heat-oppressed brain."

But the yellow rose is a reality, and one of the most agreeable amongst the many realities of the rose garden. It is not the Noisette or the Tea-scented groups only that furnish us with yellow flowers, but several other families dispute with these regal roses for favour with those who love "cups of gold," and hence a chapter on yellow roses must range rather wide in the selection of examples. Nor is the subject insusceptible of illustration from dreams and fancies, for there are those who hope for yellow moss roses and yellow perpetuals, and not a few who believe that such things really exist. As a matter of fact, our lively friends of the flowery persuasion on the other side of the channel, have actually announced yellow moss and perpetual roses as ready for confiding purchasers, but it has not been our good fortune to see any of them in flower, and for the present we do not believe in their existence. That, hypothetically, they are to be desired there can be no question. A yellow moss rose of good quality would startle civilized society out of its accustomed propriety, and a yellow perpetual to flower all the summer long in the open ground, and make sheets of golden bloom in the proper rose season in the early days of July, would be the greatest possible "acquisition" to the rose garden that has ever been accomplished, not excluding the introduction of the honourable, puissant, redoubtable, heroic, and all-conquering Maréchal Niel. Now, to speak for ourselves, we do not expect ever to see a blue rose, and we have not yet seen a yellow moss or a yellow perpetual. But in the possibility of the last two we fully believe, and therefore feel bound to urge on all those choice spirits whose delight it is to raise floral novelties, the propriety of labouring with a view to secure such desirable additions to the rose catalogue. It may contribute towards this happy end, and at the same time promote the enjoyment of yellow roses everywhere, if we now offer a

few observations on the several classes of yellow roses, and the cultivation they severally require.

**MACARTNEY.**—In the Macartney section there are several varieties that show more or less of the coveted colour. *Alba odorata* has white flowers, which are yellowish in the centre. *Hardy's Rose*, the result of a cross between *R. involucrata* and *R. berberidifolia*, has flowers of a pale yellow, spotted with purple at the base. *Rosa Hardy* was raised by M. Hardy, of the Jardin de Luxembourg, in the year 1836. In all its characteristics it is very distinct, and we quite agree with Mr. William Paul, who in his most useful and original work, "The Rose Garden," says: "We think it distinct enough to stand alone." Alas! Hardy's Rose has no constitution, and on the cold clay soil of Stoke Newington, all it does after being carefully planted is to dwindle away. But we have done well with it planted in a peat border, in a sunny lean-to house in a very damp position, and attribute our success to the free ventilation afforded during summer, and the very small amount of artificial heat employed in winter to keep frost out. The amateur intending to breed from this plant would do well to plant it in peat in a brick pit, as it would then be completely under command, and as nearly as possible in the condition of a rose in the open ground, but enjoying perfect shelter. As a matter of policy, however, we should advise the amateur to go anywhere for pollen rather than to Hardy's Rose.

**SCOTCH.**—In this section occur several yellow roses, and they all produce seed abundantly, and being hardy, offer desirable qualities to the hybridizer. As seed-bearing parents, however, they are perhaps less valuable than as supplying pollen, because of the short-lived character of their flowers, and the brevity of their season of bloom. The growth is dwarf, excessively spiny, and they multiply rapidly by suckers, which rise up some distance from the parent plant. The flowers are always more or less double, very small, globular like little balls, and agreeably fragrant. The varieties are only to be met with in old gardens, as they are all quite out of fashion. We should select, with a view to possible uses in hybridizing, the following:—*Josephus*, a good plant, with light yellow flowers; *Mary Stuart*, lemon yellow; *Mrs. Hay*, tawny straw colour; *True Yellow*, pale yellow in bud, creamy white when expanded. They should all be grown as bushes, for they make miserable standards. Any soil will suit them, but they require a pure air. A hedge of True Yellow would make a pretty feature in some out-of-the-way spot, but would not be good enough for the rosarium proper. They are strictly summer roses.

**SULPHUREA** is a relation of the Scotch rose. It has pale green glaucous leaves, erect shoots, which are covered with long prickles. The *Double Yellow* has flowers of large size, very double, and a lovely yellow colour. It is, unfortunately, without odour. It is an old, very old rose, with an incorrigible habit of bursting just when it should open beautifully. Parkinson, writing in 1629, says: it is "so thicke and double, that very often it breaketh out on one side or another, and but few of them abiding whole and faire in our country,



and the time of flowering being subject to much rain and showers; many, therefore, do either plant it against a wall, or other ways defend it by covering." Occasionally, when warm rains have been followed by bright sun, this rose will open properly, and is then extremely beautiful, but to "catch it" thus happily, is a rare event. Every observant cultivator who knows the variety has "made an effort" to overcome its eccentricities, but with small success. A rather light but rich soil and exposure to the north, appear to be favourable conditions, and without a question it thrives better on its own roots than on any kind of stock on which it has ever been tried. An important element in the production of perfect flowers is *age*, for the older the tree the better; therefore the Double Yellow may teach the rosarian patience. The tree should be pruned immediately after flowering; not indeed to shorten, but thin out the shoots, so as to secure the most perfect ripening of those that are left. The *Yellow Pompon* is a small variety of *Sulphurea*, the flowers are globular, quite double, and of a bright yellow colour. All the roses of this section flower in the early summer.

ALBA.—In this group occur a few which may be regarded as having a yellow tendency. They are *Belle Aurora*, white, tinged with yellow; *Blanche Belgique*, white tinted sulphur; *Buff*, pale buff, small; *Madame Legras*, creamy white. They are hardy, good growers, require no particular treatment, and thrive well on any kind of free stock as well as on their own roots. They flower in summer only.

AUSTRIAN BRIER.—This is a section consisting almost wholly of yellow roses. They are all closely related to our old friend of the cottage-garden, the sweet brier, or Eglantine of English writers, and the one called *Globe Yellow* is the Eglantine of the French. The following are beautiful and useful yellow roses:—*Bicolor*, single, copper and yellow; *Copper*, single, reddish copper; *Double Yellow*, or *Williams's*, raised by Mr. Williams, of Pitmaston, double, bright yellow; *Globe Yellow*, a very thrifty variety, producing globular flowers of a bright lemon colour; *Harrisoni*, double, cupped, golden yellow, habit of the tree pendulous, flowering early and soon over; *Italian Yellow*, pale straw colour; *Persian Yellow*, large, double, globular, rich deep yellow, a grand rose of its class; *Single Yellow* or *Capuchin Brier*, large and single, cupped, bright primrose yellow. *Harrisoni* and *Persian Yellow* make fine standards, and flower freely, but their beauty is soon past. They should be pruned close every alternate year, and as the process prunes the flowers out, they will of course, under such treatment, flower only once in two years. It is possible, by cutting out a certain quantity of wood every year, to insure an annual bloom, but it is better practice to flower them every other year, for then a rich display is secured instead of a poor display annually. They are summer-flowering roses, and produce an abundance of seed.

TEA-SCENTED.—These might be described as a group of golden roses, save that amongst them are several veritable teas that have rosy, creamy, and blush-tinted flowers. If we stop to praise them, we shall be led away and possibly lost; therefore, we will ask

Horatius to dedicate the golden rose with a snow-white lily to festivity and love, and then give attention to practical matters—

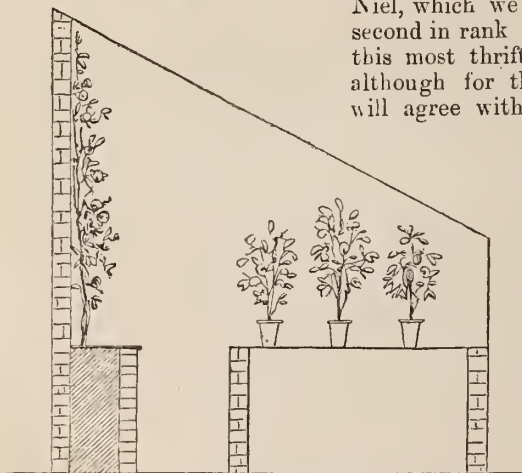
“Neu desint epulis rosæ,  
 Neu vivax apium, neu breve lilium.  
 Omnes in Damalin putres  
 Deponent oculos; nec Damalis novo  
 Divelletur adultero,  
 Lascivis hederis ambitiosir.”

*Carm. i. 36, 15.*

The yellow teas differ in habit and merit considerably, but all except one are somewhat tender, and to enjoy them thoroughly, it is necessary to plant them out in a span-roofed house, or to grow them in pots with the aid of a good brick pit. The free-growing sorts make fine standards, and are unequalled as wall-roses, for they run to a great height quickly, and flower abundantly if the points of the shoots are pinched out as soon as the rods have attained their full length. The weak growers make neat bushes if regularly pruned back to promote a sufficient growth of side-shoots, and they are most prodigal of their flowers in autumn if out of doors, but when grown under glass they flower delightfully in the month of May, and again in August. The English brier is the best stock for all the strong-growing sorts, and of all roses in the world that thrive on the brier, no matter what the height of the stem or the aspect, or even the relative purity of the air, *Gloire de Dijon* surpasses them all in hardiness and general usefulness. Indeed, we place Maréchal

Niel, which we class as a noisette, second in rank of relative merit to this most thrifty of the teas, and although for the present no one will agree with us, the time will

come when all experienced rosarians will declare the judgment to be correct. The weak growers do well on the Manetti brier, and all do well on their own roots, and their own are the best roots they can have when they are planted in open borders; because as they are likely to be killed to the ground-line in a

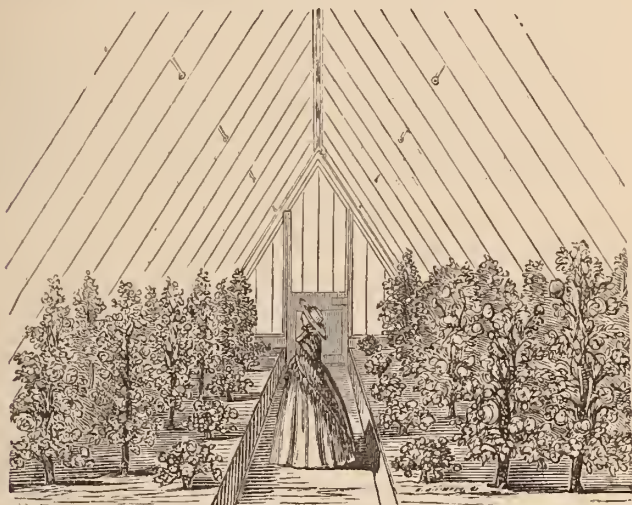


SECTION OF ROSE-HOUSE IN THE NURSERY OF MESSRS.  
 VEITCH AND SON.

severe winter, they will renew themselves from the roots, and recover in one season, but if on foster roots they never recover—it is the stock alone that survives. As the weak growers make good pot plants, and the strong growers run fast and soon cover a

wall, a profitable way of appropriating a house to yellow roses is to have a border for the runners, and train them up the wall, while the pot plants are placed on a stage in the usual way. The subjoined figure shows how Messrs. Veitch and Son manage matters in the range of rose-houses in their great nursery at K ngston.

For the advantage of those readers who do not possess the "Rose Book" (N.B. No garden is complete without the "Rose Book"), we subjoin a sketch of the Paxtonian rose-house at Stoke Newington, which was built expressly for tea-roses, and proved one of the most complete among our many successes.



ROSE-HOUSE AT STOKE NEWINGTON.

In neither of these figures is there any indication of the employment of the rafters for training long rod roses to, but this would be a good way of insuring a free bloom on some of the shy noisettes, such as *Isabella Gray*, *Isabella Sprunt*, and others that are as good as gold when you can catch them. It will be of some service to the amateur, perhaps, if we run through the list of yellow teas in alphabetical order, and make such remarks on the more important of them as appear necessary. *Adrienne Christophle*, a strong grower, confusedly coloured yellow, copper, and peach, but sometimes comes pure yellow; first-rate. *Canary*, a lovely rose, shamefully thrust out of trade catalogues of late; a weak grower, the flowers perfect when in bud, but loose when open, pale yellow. *Comte Taverna*, pale yellow, fine form; a strong grower, first-rate. *Comtesse de Brossard*, a strong grower, the flowers rather thin, the colour pale clear yellow. *Coquette de Lyon*, a strong grower, the flowers small, double, canary yellow; good. *Devoniensis*, not yellow enough to be classed (in this class) with yellow roses, but included in the list just to show that we have heard of it.

*Enfant de Lyon*, a weak grower, flowers large, pale yellow; makes a fine pot-plant. *Eliza Sauvage*, a moderate grower, very tender in constitution, pale yellow with orange centre; makes a lovely pot-plant, but for the open wall or border surpassed by *Comte Taverna*. *Gloire de Dijon*, too well known to need a character, but it is proper to observe that as it has a fine constitution and seeds freely, it is well adapted to breed from, and probably the pollen of *Maréchal Niel* is the best that can be found to fertilize it. *Isabella Sprunt*, a strong grower, a fine habit, a most valuable pot-rose, forces well, flowers well formed, colour sulphur-yellow. *Jean Pernet*, a vigorous grower, clear yellow, good. *La Boule d'Or*, a strong grower, well adapted for a rafter or pillar in the rose-house, as it flowers freely; in colour it is not as its name implies, a ball or bowl of gold, for it is neither compact in make nor of a good yellow colour; but it flowers most profusely, and we must pronounce it a good variety to grow but not good enough to breed from. *Louise de Savoie*, a strong grower, fine in form and substance, clear, pale yellow, and deliciously scented; makes a fine pot-plant. *Mlle. Cecile Berthod*, a strong grower, the flowers large and full, colour sulphur-yellow, a superb pot-rose, and one of the best of its class for forcing. *Mlle. Adele Jongaut*, a moderate grower, tender, makes a nice bush, flowers thin, lemon-yellow. *Madame Ducher*, a strong grower, flowers large and handsome, clear yellow, first-rate for pots or pillars. *Madame Fulcot* is a famous rose, more double and deeper in the apricot tint than *Safrano*, which acquires a tint of buff when full out; neither of them is yellow enough to rank among the yellow roses. *Madame Lartay* is shaded with salmon, the flower loose, the plant very tender. *Madame William* is like *Eliza Sauvage*, and as good, the plant very dwarf, and the most tender of all the roses; it is, moreover, reluctant to flower, but the few flowers it offers are beautiful in form, pale yellow with orange centre; for a pollen rose this would probably be found of service to the raiser of new varieties. *Narcisse* is a moderate grower, quite hardy at Stoke Newington, makes a good standard, the flowers large, rather thin, delicate pale yellow; good. *Niphetos* is a strong grower and a capital type for a seeding rose; the flowers are large, full, and vary from pure white to pale yellow. *Perle de Lyon* is a strong grower with handsome dark foliage, hardier than most, the flowers are large, full, and stout, varying in colour from apricot to deep yellow; a glorious golden rose. *Reine des Pays Bas* is a pillar or wall rose, as it makes long rods that flower profusely, and it may be grown as a standard or bush; the flowers are moderately full, the colour pale sulphur. *Perfection de Montplaisir* is a weak grower, forces well; the flowers come in plenty, they are smallish, the form good, colour canary-yellow. *Semele* is a fine variety, too tender for the open ground; the flowers are dashed with yellow, with shades of salmon and buff. *Vicomtesse de Cazes* is another of the famous teas, a moderate grower, but strong enough to make a good standard, somewhat hardy, and one of the freest to flower in all this family; the flowers are large, full of stout petals, the colour coppery-yellow shading to gold-yellow at the edges.



Here we must halt for the present, and we may do so without disadvantage to the subject, because the cultivation of *Marechal Niel* was admirably treated by Mr. Gordon last month. Our portrait of *Perle de Lyon* will tell its own tale; the lovers of tea roses will know by these presents that amongst the newest of the new roses there is one more valuable addition to the golden teas.

S. II.

## NOTES ON NEW ROSES.

BY AN AMATEUR ROSARIAN.



THE numbers of new roses introduced from France during the last two years has been very considerable, and as they vary in value it has occurred to me that a few notes on the best, as seen at the public exhibitions, in the leading rose nurseries, and in my own collection, would be of considerable value to amateur rosarians. Some of the varieties are so inferior in comparison with the best of the established kinds, that it is practicably impossible to make out a list of a dozen or so without including a few that are not worth what they cost, unless one has had an opportunity of not only seeing them when in bloom but of comparing them with others of the same class. At the same time it is proper to remark that roses are seldom seen in their true character during the first year or two of their introduction, and this is easily accounted for. The French raisers, when they have anything they think worthy of being distributed, naturally enough propagate as large a stock as possible in a short time, and the English nurserymen when they receive the plants push them on in a high temperature for propagating purposes, and it follows that the plants require at least a year's growth before they acquire sufficient strength for the production of their flowers in their true character. Hence it is many roses that are described as thin and wanting in substance when they first flower on this side of the channel, ultimately turn out to be real acquisitions. Others again which are full of promise, and produce blooms which the rosarian is wont to think will, when the plants have acquired their full strength, be first-rate, turn out to be comparatively worthless. Allusion is made to this point to show the difficulties under which the rosarian labours in estimating the value of roses during the first year or so of their being in commerce.

Although the French raisers are alone alluded to in the foregoing remarks, it must not for a moment be assumed that no good roses are raised in England. On the contrary, some of the finest roses we have, and especially of recent introduction, have been raised in this country. We do not hear much about English raised roses, owing to the small number sent out in any one season. The English raisers only send out those which are first-class, whilst a few of their brethren on the other side of the channel do not practise such

a vigorous system of selection, and allow to pass out of their hands many that are worthless.

Referring to my notes I find the undermentioned of those now being distributed for the first time, to be well worth the attention of the rosarian who is of a speculative turn.

*Alexander Dickson* (H.P.)—A fine rose, raised by Mr. Dickson, of Dublin. It is large, perfect in form, and exceedingly attractive; colour rose-lilac.

*Bessie Johnson* (H.P.)—This is an English raised rose of considerable excellence; flowers pale blush, very large, of good form, and delightfully fragrant.

*Bouquet d'Or* (Noisette).—Flowers large, full, and of good form; colour yellow with copper centre; a good buttonhole rose when in the bud.

*Cheshunt Hybrid* (Tea).—A very distinct and beautiful English raised rose. It is a seedling from Madame de Tartas, a little known tea-scented variety, crossed with a hybrid perpetual. It is assuredly a grand rose, for the flowers, whilst of the rich dark colour and fine form of the hybrid perpetual, possess the delicate perfume of the tea rose. In vigour of growth it is equal to Blairi No. 2, so that it will be a most valuable climbing rose.

*Claude Levet* (H.P.)—Flowers large, full, and of good form; colour rich carmine-red; very promising.

*Felicien David* (H.P.)—Flowers large and full, red-crimson; vigorous and free flowering.

*Firebrand* (H.P.)—Flowers very large, full, and circular in outline; colour blackish maroon with fiery red centre. An English raised rose of great excellence, and remarkable for the vigour of its growth.

*Madame Caroline Kuster* (Noisette).—Flowers large, full, and globular; colour yellow-shaded orange; very free flowering and of good habit.

*Madame Denis* (Tea-scented).—Flowers of good size and full; colour white, tinged with yellow in the centre; very desirable.

*Madame Docteur Jutte* (Tea-scented).—Flowers of medium size and full; colour rich yellow; highly fragrant, and free flowering.

*Madame Francoise Jamin* (Tea-scented).—Flowers of medium size and full; colour coppery-yellow; very sweet and vigorous.

*Madame Lacharme* (H.P.)—This was described as a pure white hybrid perpetual, and as such would have been most valuable, but it is shaded with pink when in a young state; nevertheless it is a fine rose.

*Madame Marius Cote* (H.P.)—Flowers large and of excellent form; colour reddish-rose.

*Perle de Blanches* (H.P.)—Flowers of medium size and good form; pure white, desirable.

*Pierre Seletzsky* (H.P.)—Flowers large and reflexed; colour deep purplish-red; attractive and promising.

*Unique Jaune* (Noisette).—Flowers of medium size; colour coppery yellow painted with red; very vigorous in growth, and distinct.

Of those sent out last year, which have had a fair trial in this country, the following can be recommended:—

*Abbe Bramere* (H.P.)—A fine dark rose, large, full, and of good form; colour velvety purple.

*Auguste Rigotard* (H.P.)—A showy rose, with large, well-formed flowers of a bright red.

*Cecile Berthod* (Tea-scented).—A very beautiful rose, with large yellow flowers, which appear to great advantage in relief with the dark bronzy foliage.

*Coquette des Blanches* (H.P.)—A useful, white-flowered hybrid perpetual.

*Lyonnaise* (H.P.)—A most attractive variety, with large rose-pink flowers.

*Madame George Schwartz* (H.P.)—A useful rose, with large rose-coloured flowers; vigorous in growth and free flowering.

*Marie Van Houtte* (Tea-scented).—A pretty variety, with large white flowers tinted with yellow and rose.

*Perfection de Monplaisir* (Tea-scented).—A desirable addition to its class, with clear yellow flowers.

*President Thiers* (H.P.)—A fine dark-coloured rose; likely to become popular.

*Princess Louise Victoria* (H.P.)—A splendid climbing rose, figured in the FLORAL WORLD some time since.

*Richard Wallace* (H.P.)—A useful variety, with large, well-shaped flowers of a bright rose shading to white.

*Victor Verdier* (H.P., climbing)—A scandent form of one of the most beautiful roses in cultivation.

It remains to be said that the present time is most favourable for the purchase of roses in pots. Well-established plants, if shifted at once into six-inch pots and properly attended to during the summer, may be expected to bloom superbly during the following spring.

## HYDRANGEAS FOR THE CONSERVATORY.

BY J. WILLIAMS,

Superintendent of Indoor Plant Department, Crystal Palace, Sydenham.



VISITORS to the Crystal Palace who take an interest in the floral decorations very frequently express their surprise at the splendid appearance presented by the Hydrangeas employed in the embellishment of the marble basins round the glass fountain in the nave. Inquiries are also made as to the means adopted for securing such successful results, and it appears that a very general impression prevails that we must possess some secret. There is not, perhaps, what may be correctly designated a "secret," but unquestionably our system of growing Hydrangeas differs materially from that usually

adopted in private gardens, and I will describe it as briefly as possible, for the guidance of those amateurs who may be desirous of growing this useful plant to the highest state of perfection. At the Crystal Palace, where we have visitors from all parts of the world and of all ranks of society, we of necessity are compelled to grow the plants used for decorative purposes to a very high state of perfection; and for that reason are bound to adopt, in many cases, a system differing materially from that adopted elsewhere. For example, the half-starved Hydrangeas, with puny little heads of flowers, which one frequently meets with in the private conservatory, would, in a noble building like the Crystal Palace, be of small value for purposes of embellishment, and would not create so favourable an impression in the minds of the visitors as we could wish. After stating this much, I am anxious to remove any impression which might prevail, after reading the foregoing remarks, that our system entails a larger amount of labour than that of any other cultivator. It does nothing of the kind, for, after all, it is exceedingly simple, and may be said to consist in doing the work in the proper manner and in the right way. It is, moreover, equally as well adapted for the cultivation of a dozen plants, as it is for those who like to grow them by hundreds.

Let us for a moment imagine the case of an amateur who possesses a plant which, although of considerable size, is of no value for decorative purposes. Now, the best course to pursue will be to strike a batch of cuttings, so as to lay, as it were, the foundation of a stock of plants, and the old plant will yield an abundance. To do this is simple enough, for the short-jointed shoots, without flowers, strike freely when managed in the ordinary way. With the aid of a cucumber or melon pit, the cutting can be struck at any time, but if they have to be placed in the greenhouse or cold frame, it will be better to wait until the summer season, when the wood has become moderately firm, and avoid the risk of their damping off. Prepare the cutting pots by first placing a layer of crocks in the bottom, and then filling them with a light and sandy mixture. A layer of sand will complete the work, and the cuttings can be inserted round the outside. The latter should be cut just under the third joint, and the lower pair of leaves removed. Well water them in and for the first fortnight or so, keep them rather close and moist to keep the leaves fresh for as great a length of time as possible; but at all times sufficient air must be admitted to prevent the decay of the leaves resulting from an excess of moisture. This can be easily done, whether the cuttings are placed under a hand-glass in the greenhouse or in a frame.

No time must be lost, and therefore make a point of potting them off separately immediately they are rooted, and put them in three-inch pots, and afford them every encouragement to become established quickly by keeping them close for a few days, and the foliage sprinkled once a day. A stocky growth from the first is essential, and to secure this expose the plants freely, and if they are well established by the end of July, place them in the open air. The winter management consists in thoroughly resting the plants



by keeping them in a cool, airy position, and the soil rather dry. In February or March, according to the time they are required in bloom, turn them out of the pots, carefully loosen the roots round the outside of the ball of soil, and shift them into pots two sizes larger—that is to say, pots six inches in diameter. Use a compost consisting of turfy loam three parts, and decayed manure or leaf-mould one part. Or the fourth part may consist of equal parts of leaf-mould and manure. They can then be placed in the greenhouse or frame, but, if required in bloom early, they must have the assistance of a little artificial heat. But, as a rule, the amateur will not require to use artificial heat, for *Hydrangeas* are needed in private gardens after the *pelargoniums* are past their best, and to have them in bloom at that period, the protection of a greenhouse or cold pit will alone be needed. If the plants do not attain a height of more than a few inches during the season in which they are propagated, it will not be necessary to prune them at all. But if, on the other hand, they attain a considerable height, prune them, at the time of potting, to the first or second joint. If the plants are liberally supplied with water and kept near the glass, the majority will produce magnificent heads of bloom, such as are to be seen on the plants with which we decorate the marble basins at the Crystal Palace.

Let us take another view of the case, and suppose the amateur to be desirous of producing a few large specimens after he has thoroughly mastered the cultivation of specimens of the size alluded to in the foregoing remarks. But before passing on to the consideration of this part of the subject, I would say that by pruning the plants back rather severely, and allowing only one or two shoots, they may be kept to a small size, and be made to produce gigantic flower-heads for several years. In doing this the main point will be to reduce the ball of soil at the spring shift sufficiently to admit of their being put in the same sized pots again, with at least an inch of rich fresh compost all round. The first step in the production of large specimens is to secure a number of branches, and it will be found that if at the first pruning the plants are pruned back to the second joint three or four strong side-shoots will be the result. The second year these can be pruned back to about the same distance from the secondary shoots. To state the whole case in the fewest words, the shoots produced the previous season should at each winter pruning be cut back to the distance from the old wood mentioned above. By this means the specimens, although they will attain large dimensions, can be kept neat and compact. To maintain them in a healthy and vigorous condition without the use of gigantic pots reduce the ball of soil from one to two inches all round, according to the size of the plant. This will admit of the use of a much larger proportion of fresh compost at each annual shift than would otherwise be possible without the use of pots of an extravagant size.

There is really no limit to the size to which the plants may be grown under the system here described. It is simply a work of time, and each cultivator will be the best judge as to what sized specimen are best adapted to his requirements. Specimens five or six feet in diameter, with fifty or sixty well developed flower-heads,

and furnished with glossy green foliage, are certainly most noble in appearance, whether employed in the decoration of the conservatory or the terrace garden. Speaking generally, it may also be said that specimens of the dimensions here mentioned will be quite large enough for all purposes. Hydrangeas, it should be observed, are perfectly hardy, as the large plants round the beds of American plants on the terraces here amply testify. They may, therefore, be wintered in the open air, but to prevent the frost from splitting the pots or injuring the roots, they should be covered with long litter, or at the least the pots be plunged in a bed of coal-ashes.

### GARDEN PLANTS OF KINGSTOWN, IRELAND.



IN the May number of the FLORAL WORLD, I have read with pleasure an interesting paper on plants and shrubs growing out of doors winter and summer in the north of Ireland. Perhaps a description of those I saw myself last autumn in full bloom at Kingstown, a watering place near Dublin, may also prove interesting to some of the readers of the FLORAL WORLD.

In the front gardens of the terraces, some of which were close to the sea, others more inland, were fine large plants which had evidently been growing out of doors many years, of the following amongst others:—*Scarlet Salvias*, *Shrubby Veronicas*, *Sweet-scented Verbenas*, *Myrtles*, and *Fuchsias*; not the old *Fuchsia Riccartoni*, which is common enough out of doors, but large show and double flowering varieties, in the style of *Mrs. Marshall*, *Sir Colin Campbell*, etc., etc. The most of these small gardens were divided by iron rails about two feet high, which formed a support for myrtles, veronicas, and fuchsias, which were trained against them, and allowed to form a thick hedge the height of the rails. The effect of these when in full bloom, as I saw them the first week in October, was truly charming, and would surprise many as it did me at the time. Indeed, I was wondering had my favourites at home been yet lifted and put into their glass quarters for the winter, but here were these fine specimens (some of the myrtles stood over eight feet high) in full flower, looking strong and healthy, having stood many a sharp frost and blustering wind, for Kingstown in winter is bitterly cold, yet they were much finer, and with a far greater amount of flowers on them than mine which were well taken care of under glass during the winter months. The plants appeared to have been cut back rather hard, which no doubt accounted for the amount of flowers on them. I also observed some fine yuccas, which seemed to grow there in great luxuriance, also fine plants of *Escallonia rubra*, which is used there mostly for covering walls. I was mentioning my astonishment at seeing the above-named plants doing so well out of doors the season round to the foreman of a well-known nursery firm a few days since, and

he informed me the first week in January he has seen scarlet camellias growing out of doors in full bloom in the south of Ireland. I have no doubt many of the plants above named would grow out here just as well as in Ireland; I myself intend to try some of them. I began last autumn with the veronicas, which in a few weeks will be covered with bloom spikes, and do not appear to have suffered in the least from their change of quarters. *Escallonia rubra* thrives well here.

*Upper Norwood.*

A. H.

## A RAINBOW OF FLOWERS.

BY GEORGE GORDON.



**EXACTLY** eight years since, the editor of the *Gardener's Magazine* propounded, in the pages of that journal, a scheme of colouring by which the rainbow may be imitated with leaves and flowers of bedding plants. It excited at the time a considerable amount of attention and criticism amongst the principal flower gardeners, and a brief reference to it may perhaps prove interesting to the readers of the *FLORAL WORLD*. The principal difficulties in carrying out a scheme of colouring so bold in its idea and novel in its features were pointed out at the time. Chief amongst these were the large space required for producing a distinct effect; the green ground instead of the heavenly azure or dull leaden ground in which the rainbow is usually set; and the limited number of plants suitable for the reproduction of the rainbow, as nearly as may be, in true colours and true proportions. The difficulty of providing the space still remains, but the others are practically removed, for during the last few years so many new plants suitable for bedding purposes have been introduced that we have a much wider range of selection, and in some of the new lobelias we have just the colour for producing a proper setting for the rainbow.

The idea of a rainbow might be modified to suit a green ground, and a series of blending colours and intermediate shades arranged in semicircular lines could be disposed so as to have a rainbow-like effect upon grass without being, or professing to be, an exact imitation. But it will, of course, be necessary, if an exact imitation is attempted, to have a groundwork of the proper colour. A broad border planted to resemble the rainbow would also be most effective, and the requisite groundwork could be obtained by planting a broad band of lobelia or a dwarf ageratum in the front and a band of tall ageratum of the requisite width at the back; to do this well a very broad border will be required, and it will certainly be better not to think of a blue ground at all and to confine our attention to the production of a rich scheme of colouring on the grass.

But let us consider the planting of the rainbow, and the next

task is to colour it correctly. The real rainbow consists of many more shades of colour than have ever been counted, because all the colours are in transition, the central band of each being most pure and intense, and thence each way it shades by fine degrees into the colour that adjoins it. This fine shading could not, it need hardly be said, be imitated with bedding-plants, and we must take for the basis of operations the popular doctrine that the rainbow consists of seven colours only. Having determined this point it follows that we must settle the relative proportion of these colours. In the real rainbow they are disposed in the following order:—1, red, 45 parts; 2, orange, 27 parts; 3, yellow, 48 parts; 4, green, 60 parts; 5, blue, 60 parts; 6, indigo, 40 parts; 7, violet, 80 parts, in all 360, the breadth of the bow.

Now supposing we have to adopt the same proportions and consider all the figures as inches, thus then the bow is to be 360 inches or 30 feet wide. On this scale the space necessary would be very great and the number of plants required simply enormous. It will be necessary to have the bow considerably broader in proportion to the length of the chord than is the natural bow, for the simple reason that as we cannot plant ribbon-lines from horizon to horizon we cannot give it breadth enough to be visible and practicable unless we depart from the scale on which the bow is produced naturally.

From calculations carefully made it appears that the following are good proportions; that is to say, proportions to which the planter can adapt his work without difficulty, and proportions which are likely to prove satisfactory when viewed in a garden scene. For a quarter-inch scale the bow will be  $7\frac{1}{2}$  feet wide, and the chord will be 105 feet in length, measuring from violet to violet, or 120 feet from red to red. By drawing a bow with the aid of pencil and compasses exactly to these proportions, it will be seen how admirably it is adapted for forming a ribbon boundary to a semicircular lawn in front of a house, or to give a semicircular outline to a lawn facing the drawing-room windows where there happens to be clear space enough for drawing it complete without trees and shrubs interfering.

A very good scale would be three-eighths, this would give  $11\frac{1}{2}$  feet for the breadth of the bow, that is from red to violet, and 180 feet for the length of the chord from red to red; to carry it out the inner and outer boundaries should both be struck from the same centre, and when the bow is cut the breadths for the several colours should be marked off with pegs, and these pegs left in the ground, so that at any time they could be referred to to see if any one colour was encroaching too much on another.

Supposing that we have the bow marked out, it is necessary to at once consider what we are to plant it with. As it is practically impossible to provide the blue ground, for on the lawn there is not room for it, we must consider the planting in relation to a green ground. Even with the greater abundance of material at the present moment it requires a considerable amount of care and knowledge of bedding-plants generally to select them without incurring a risk of failure. It is of the first importance that for



this work the plants should be as nearly as possible of one height ; but no one class of plants will furnish us with the proper colours for completing the scheme.

A scale of three-eighths would be in every way suitable, but to avoid mistakes, and to render it unnecessary to take into consideration fractional parts of an inch, we will now assume that the bow is to be formed and planted on a quarter inch scale, and it will therefore be simply necessary to divide the proportions of each colour by four and we have at once the width in inches to be planted with each colour. Thus the red band, No. 1, will have to be (without taking the fractions into consideration) eleven inches wide ; the orange band, No. 2, seven inches wide, and so on. No. 1 must unquestionably be a band of geranium, but the difficulty consists in selecting one that is not too bright in colour, for a brilliant scarlet is not desirable ; the hue of Beaton's Indian Yellow is the nearest approach to what we require, but in Violet Hill Nosegay we have a variety which is certainly preferable in point of habit and freedom of flowering, and the colour is not too bright to prevent its being used. Therefore let No. 1 band be formed with Violet Hill Nosegay, or Memnon ; and as it is important to cover the ground as quickly as possible, a double row of plants for a band on the scale determined upon above is desirable.

For band No. 2 we require an orange, and the colour of the flowers of Stella, or Charley Casbon is an orange scarlet, but the juxtaposition would amend that, and the slight tint of purple in No. 1 would bring out the orange tint in No. 2. The band will be seven inches in width, and a single row of plants will be ample. Then the third band may be formed with a calceolaria, and the choice lies between Aurea floribunda, Gaines' Yellow, and Golden Gem, and the one to be preferred to all others is the last on the list, for it flowers more continuously, and stands bad weather better than either of the others ; the least to be preferred is the first-mentioned, which suffers so severely when exposed to adverse influences. If there is any difficulty in obtaining a stock of calceolarias sufficient for the purpose, the showy Tagetes signatis punctata may be used ; but unless the seed has been saved with special care from the dwarfiest plants, and the soil moderately poor, the plants will grow irregularly, and a portion may not bloom satisfactorily, and the effect of the whole scheme be marred in consequence.

We approach a real difficulty when we come to the band of green, which must be fifteen inches in width. Apart from the difficulties of obtaining plants with foliage of the proper tone of green, and the incessant labour necessary to keep the flowers under, it will be found that the green band would split the bow into distinct halves. To get out of the difficulty and avoid the risk of spoiling the scheme, we must take an anti-meteorological view of the case, and take advantage of some other colour, or omit the band altogether. White would do, but it is not desirable, and grey would be preferable. If the latter is determined upon, Cineraria maritima would be the best plant to select, as it is not too decided in tone, and with but little trouble can be kept down to the desired height. A

band of bronzy red would produce a more pleasing and satisfactory effect than any other colour, and the best plant for the purpose would be *Coleus Verschaffelti*. *Iresine Lindenii* is a trifle too dark, but it would answer admirably, for it is free growing, hardy, rich in colour, and can be kept to a proper height.

The band No. 5 is blue, and should be of the same width, namely, fifteen inches, as the preceding. The colour afforded by *Lobelia speciosa* is most appropriate, but the plant does not attain a sufficient height, and I propose to substitute for it *Ageratum Imperial Dwarf*, which can be depended upon for continuing in full bloom throughout the season.

For the sixth band, which should be twenty inches in width, the rich colouring of *Viola Blue Perfection* would be most suitable, but most unfortunately the plant does not attain a sufficient height, and would be hidden from view by the other things. We shall have to fall back upon *Purple King Verbena*, or *Jersey Beauty Heliotrope*, the latter being probably the best because of its flowering more freely, and continuing in bloom in unfavourable weather.

In the rainbow the last band of colour is violet, but here we have a green ground, and, moreover, it will be found that violet will be too heavy, and that some proportion of red in it would make it balance better with the first or outside row. We have now to consider what flowers may be employed, and there can be no doubt that a geranium will be found of the most value. There are several varieties that would answer admirably, but none appear so thoroughly well adapted for the purpose as *Lady Kirkland*. Or, what is better still, we might have a single row of *Hibberd's Feast of Roses*, and to form a boundary outside a single row of *Waltham Seedling*, so as to shade gently from the blue to the crimson, and at the same time form a proper balance with the front rows. It appears that this would be very rich planting indeed, and would be a wonderful change from the diamonds, the crescents, the stars, the full moons, and other forms, all good enough in their way, but so common as to make one feel tired of them, and desire a change.

A rainbow, coloured in part with leaf plants would, in some respects, be more satisfactory, as it would be rich in appearance from the first, and the plants could all be kept down to the desired height. But we are faced with the difficulty that we have no plants with leaves of the proper tone of red for the first row. We might, perhaps, have one of the golden-leaved *Coleus*, *Queen Victoria*, for example, which at a distance has a reddish hue, but after much consideration, it appears that *Alternanthera paronychioides* is the most desirable, although its foliage does not present us with the proper tone of red. The remaining bands can be planted as follows: second band, *Geranium Sybil*, a very dwarf-growing variety, belonging to the bronze zonal section; third, *Golden Feather Pyrethrum*; fourth, *Coleus Verschaffelti*; fifth, *Viola Enchantress*; sixth, *Lobelia Brilliant*; seventh, *Viola Perfection*. To form a balance with the first and middle bands a row of *Coleus Verschaffelti splendens* may be planted.

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## BEDDING PELARGONIUMS, WITH ORNAMENTAL LEAVES.

(Selected from the Royal Horticultural Society's Trial at Chiswick)



THE trial of bedding geraniums in the garden of the Royal Horticultural Society last summer was, as we have already stated, very extensive, and it included the principal varieties in the several sections. We now offer a few remarks on the varieties grown for their ornamental leaves, comprising the variegated-leaved and the bronze, silver, and golden zonals.

[SILVERY-VARIEGATED.] — *Albion's Cliffs*. — White-variegated; strong grower; first-rate for large beds.

*Brilliant Superb*. — An improved *Brilliant*, with better defined variegation.

*Flower of Spring*. — Cream-coloured variegation; free-flowering and compact; a first-rate bedder.

*Miss Kingsbury*. — Perhaps the best white-variegated variety grown.

*Mrs. Lennox*. — One of the best white-variegated varieties grown.

*Princess Alexandra*. — White-edged foliage; dwarf and compact.

*Queen of Queens*. — Large cream-edged foliage; very free and first-class.

*Silver Chain*. — Cream-margined foliage; free and compact habit; first-rate.

*Snowdrop*. — Compact cream-coloured variegation; good and distinct.

*Variegated Stella*. — A sport from the *Nosegay Stella*, with flowers of the same colour, and with similar-shaped foliage, but variegated; slow-growing, but pretty.

*Waltham Bride*. — White flowers, with cream-edged foliage; a very slow grower, dwarf, and a moderately free flowerer.

*White Lady*. — White flowers and white-edged foliage; a moderate grower; distinct and good of its class.

[GOLDEN-VARIEGATED.] — *Crystal Palace Gem*. — Foliage yellow, with green blotch near the base; a free compact grower; one of the best bedders.

*Golden Chain*. — An old favourite; foliage clear green, with broad margin of golden yellow; very bright; a slow grower, but still unsurpassed in its way.

*Golden Fleece*. — Foliage large, very bright yellow, with small blotch of green on the lower part; a very dwarf and compact grower.

[YELLOW SELF-COLOURED.] — *Creed's Seedling*. — Foliage bright greenish yellow; free and compact.

*Jason*. — Foliage bright soft yellow; dwarf, compact, and first-rate.

*Robert Fish*. — Exceedingly dwarf habit, foliage small and of a bright yellow colour; first-rate for edgings.

[SILVER ZONALS.] — *Glen-Eyre Beauty*. — Moderate grower, free and good; one of the very best; zone very bright.

*Italia Unità*.—A moderate grower in its class, and still ranking amongst the first-class varieties.

*Miss Burdett-Coutts*.—Very closely resembling *Italia Unità*.

*Princess Beatrice*.—Large flat foliage, with narrow bright zone and large centre; very distinct, free, and good.

[GOLDEN ZONALS].—*Achievement*.—Large foliage with bright zone, and large centre; free and first-rate.

*Amy Richards*.—Flat foliage with fine bright red zone; free and first-rate; one of the very best.

*Defiance*.—A first-rate bright red-zoned variety; free and good.

*Florence*.—Dwarf and compact-growing; bright broad-zoned foliage; a first-rate bedder, and adapted for edgings.

*Jetty Lacy*.—Pretty and distinct zone, narrow, and of the brightest scarlet-lake.

*Lady Cullum*.—Scarlet flowers; a variety good and effective; zone broad, dark, on a flat leaf; a good grower; first-class.

*Louisa Smith*.—Free-growing, of good habit, and distinct.

*Macbeth*.—Decidedly the gem of the season in tricolors; a strong robust grower; large flat foliage, with a very dark broad zone; altogether a grand thing.

*Miss Batters*.—Large centre, with bright red zone; free-growing.

*Mrs. Pollock*.—Still an old favourite amongst the free-growing bright-coloured tricolors; always effective.

*Mrs. Turner*.—Foliage flat, the centre small, the zone broad and brightly coloured; free-growing, compact, and good.

*Plutarch*.—Flowers scarlet; good foliage and good habit, the zone very bright and clear; first-rate.

*Queen Victoria*.—Broad leaf, with broad dark zone; a good grower and distinct. Previously certificated.

*Sir Robert Napier*.—Very dark broad zone, shaded with red; first-rate and distinct.

*Sophia Dumaresque*.—Zone bright red, with clear yellow edge; free and good.

[BRONZE ZONALS].—*Beauty*.—Very pretty; bright and effective; of moderate growth.

*Beauty of Calderdale*.—Good robust habit; broad dark zone.

*Beauty of Wolverstone*.—Large foliage, of the brightest yellow, narrow dark zone; very effective and distinct; strong, but compact.

*Black Douglas*.—A good grower, robust and dwarf; fine dark broad zone, with very narrow yellow edge; first-class.

*Black Prince*.—Large foliage, with broad bold zone; very free; first-rate.

*Cedo Nulli*.—Good broad bright zone; robust, yet compact in habit; good.

*Cleopatra*.—Bright red broad zone; free and good.

*Criterion*.—Bright yellow leaves, with broad, regular red zone; a good grower; first-class.

*Earl of Rosslyn*.—Good-sized perfect leaves, yellow ground, with broad zone; dwarf and compact.

*Golden Superb Nosegay*.—Dwarf spreading habit; a free grower; bright yellow foliage, with very pale zone; first-class.



*High Admiral*.—Dark broad zone; a good grower, and first-rate.

*James Richards*.—In the way of *Beauty of Calderdale*, but neater and more evenly marked; first-class.

*King of Bronzes*.—Very bright zone; good compact habit; a telling variety.

*Kentish Hero*.—Bright yellow dark-shaded zoned foliage; a good grower; one of the best.

*Maréchal M'Mahon*.—The very best bronze zonal amongst the new varieties; very dark, broad, and very even zone, flat leaf; good, robust, compact habit; first-class.

*Model*.—Foliage greenish yellow, with narrow zone; compact; distinct.

*Mrs. Elliott*.—Bright reddish maroon zone; good habit and free; first-rate.

*Mrs. Reid*.—Bright red zone, very effective; dwarf and compact.

*Northern Star*.—Bright broad zone; a good grower and free.

*Plutus*.—Foliage lively yellow, with bright red zone; moderate grower, effective.

*Reine Victoria*.—Very large foliage, yellow ground, with bright broad zone; free; first-class.

*Rev. C. P. Peach*.—Large bright foliage, with dark zone; robust and compact.

*Rev. W. F. Radclyffe*.—Dwarf flat habit; greenish yellow leaves, with narrow dark zone.

*Sybil*.—Dwarf and compact; very bright and broad zone; excellent; one of the best dwarf bedders.

*The Moor*.—Dwarf and compact habit; good foliage, with broad shaded red zone.

## SUCCULENT PLANTS FOR BEDDING.

BY HENRY CANNELL, F.R.H.S.

The Nursery, Station Road, Woolwich.



URING the last few years some of the succulent plants which at one time were grown as curiosities in the greenhouse and on the rockery, have become deservedly popular for bedding purposes, and their cultivation is rapidly extending on all sides. Their chief value consists in their adaptability for the formation of divisional lines in panel beds, and for edging purposes generally. They are so neat, and require such a small amount of attention during the season, that certainly they are in their way quite unsurpassed, and too much cannot be said in their favour. They are, moreover, marvellously cheap, good plants of some of the most popular and useful kinds being procurable at prices ranging from half-a-crown to six shillings per dozen. I mention this to show that they are as cheap as the commonest bedders, and within the reach of the humblest amateur.

They are easily propagated by means of seed and the offsets. One or two kinds can also be propagated by cuttings.

In offering these remarks, my principal object is to show the way in which they should be used to produce the best effect, and it may be mentioned that for several years past I have by examples in my nursery attempted to show visitors the best way of employing them in the flower garden.

First of all we have the *Echeverias*, which require the protection of a frame or greenhouse during the winter season. One of the best known is *E. metallica*, which has large bronzy leaves, curiously twisted, and not unlike the blades of a screw-propeller. This is best adapted for planting in the centre of small beds, or in circles, or panels of large ones, with a carpet of some dwarf-growing plant, such as *Antennaria tomentosum* or *Sedum glaucum*. Good specimens employed in this way are very effective, but it is not desirable for planting in masses, as is sometimes recommended. *E. glauca metallica* is a most distinct and valuable hybrid, for it possesses the bold handsome leafage of *E. metallica*, and the silvery white-



ECHEVERIA SECUNDA GLAUCA.

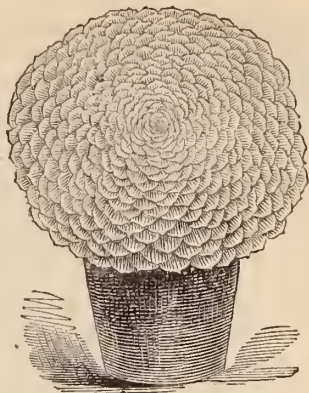
ness and compact habit of *E. secunda glauca*. It may, therefore, be employed with great advantage for edging large beds, and also for divisional lines. It has the great advantage that when once planted it requires no further attention to keep it in proper trim. The most useful of the family is perhaps the dwarf-growing *E. secunda glauca*, which as an edging plant is quite unsurpassed. It forms pretty little rosettes from four to five inches across, and is most effective both when in and out of bloom. *E. secunda* makes a very good edging, but the leaves are green instead of silvery, and it is not so good for a marginal band, as it does not show so well against the grass, or box, as the case may be. Nevertheless, it is useful for some purposes.

*E. pumila* makes a neat edging, and as it grows naturally in clusters, the offsets must not be removed in the same manner as from the other kinds. *E. atropurpurea* has dark purplish leaves, but although very distinct it is less useful than many others. *E. pulverulenta* is very fine for choice beds, but as yet it is too expensive to recommend for general purposes.

The *Sempervivums* are of great value for bedding, and some of the most useful are perfectly hardy. Perhaps the best for edging is *S. Californicum*, which may be used in a similar manner to the



SEMPERVIVUM CALIFORNICUM.



SEMPERVIVUM TABULÆFORME.

dwarf-growing *Echeverias*; it is readily propagated by offsets, which are produced in plenty, but not so freely as to render them objectionable. The common houseleek, *S. tectorum*, may be employed for the same purpose as the preceding, but it is not so rich in colour, and the offsets are produced in such a plentiful manner as to quite spoil their symmetrical appearance. *S. globiferum*, *S. hirtum*, *S. montanum*, *S. umbilicum* *chrysanthemum* are all hardy, and are also useful for edging purposes.

There are several half-hardy kinds which have proved here to be of great value for bedding. The table plant, *S. tabulaforme*, is one of the most valuable of these, especially for edging purposes; it has not been employed very extensively as yet, because it has been scarce; there is, however, no great difficulty in its propagation, for within a very short period I have succeeded in raising several thousand. *S. arboreum atropurpureum*, *S. a. variegatum*, *S. Donckelaari*, *S. holochrysum*, *S. Youngi*, and several others, are also useful for planting in the centres of carpet and other beds, as they form very pretty specimens.

In forming edgings of *Echeverias* or *Sempervivums* of dwarf growth, it is most important for the edge of the bed to be firm and perfectly straight; the sides of the bed should slope slightly, and if two or more rows of plants are planted, a little cement should be mixed with the soil to keep it in its place. It is a very good plan to mix equal parts fine soil and cement together, and with the mixture form a face to the slope; the plants must, of course, be put in position before the cement has had time to set.

## SEASONABLE WORK IN THE ORCHARD-HOUSE.

BY A KENTISH GARDENER.



ALL trees in the orchard-houses under my charge, owing to the healthy condition which they are in, have set their fruit remarkably well, and we have had to remove a very considerable number, and there yet remain many which will eventually have to be removed. With the cherries I adopted the somewhat unusual plan of thinning the bloom when the trees were fully expanded; and I find this to be much the better plan, as it does not exhaust the tree so much as when all the bloom is allowed to remain and set fruit before removal. I am so well satisfied that I intend to follow it up in future seasons in all cases where there is a superabundance of it. It requires a strong nerve and some amount of judgment, I admit; but where success is desired, the earnest cultivator ought not to allow any such considerations to have any weight with him.

Owing to the cold weather which prevailed during the last two months, we have had more than our usual share of insects, but we have managed to keep them under pretty well. In the first place, an attack of the brown-fly occurred just as the peaches and nectarines were in full bloom. This prevented me from applying the usual remedies as soon as I saw them; but immediately the trees were out of bloom a good syringing with tobacco-water was given, which soon sent them about their business, and the trees are now beautifully clean.

The trees were no sooner rid of these pests than a fresh assault was made by a destructive maggot, as it would curl itself up in the young leaves of apricots and cherries, and if not immediately dislodged would eat holes in them, causing a sad disfigurement to the leaf; and if left undisturbed for a couple or three days, would ultimately esconce themselves in the very heart of the young growth, and destroy its further progress. So numerous were these pests that nothing but constant hand-picking every day would keep them under; but by the close of the first week in May the houses were quite clear, and continue so up to the present time.

As to red-spider, so troublesome in many orchard-houses, it is a stranger to me; for the trees are syringed vigorously every evening, and in hot weather all the borders and paths are kept constantly moist by frequent dampings two or three times during the day. As a precaution, after I have done watering and syringing in very bright weather, I shut up the houses about six o'clock, and let them remain so for an hour: this causes such a steam to rise, that every branch and leaf that has escaped the water-pot or the engine is sure to be moistened, which is very objectionable to red spider.

There is no doubt that a cold spring is favourable to the attacks of insects, as, I believe, many beside myself have been similarly troubled this season. Even in a cold season there has been a considerable amount of labour in watering, because the greater portion of our trees are in pots. No neglect of watering the trees must



occur, for the consequences if only neglected for a day will be most serious; and I know, too, that with most orchard-house trees in pots it is almost impossible to give too much water (within reasonable limits), if the pots are well and perfectly drained, from the time the bloom is set until they are showing symptoms of ripening. My impression is, that many of the failures of which we hear arise from a deficiency of water and of solid nourishment, to maintain the trees in a healthy state. My course of proceeding is, early in the month of April to mulch the trees with a thickness of three inches of the fattest half-rotten dung I can find from the linings of my early cucumber beds. This serves them until the fruit is stoned, and then I give them moderately strong doses of liquid manure three or four times a week. It may be all very well for some practitioners to cry down the plan of alternate doses of manure-water, but it will not do for me, because I know from careful observations that my trees, or anything else under my care, have never suffered from it. I therefore recommend to all orchard-house cultivators to water first with clear water, and in a few minutes after apply the liquid manure, and then the tree, or whatever it may be, will be the more benefited by it. This is always assuming that the plant is moderately dry at the commencement. There are no definite rules to be laid down as regards watering, as it depends entirely upon the state of the weather. In wet, dull, cloudy weather they will only want it every other day; but in bright sunny weather, from the 1st of April until the last day of September, they must have it every day, and that not earlier than five o'clock in the afternoon, and then sufficient must be given to moisten the whole ball of earth.

With respect to the quantity of water required by trees in pots and those planted out in the open border, I am firmly convinced that trees planted out do not require so much by one-third as those in pots, and, what is still more important, they do not suffer half so much if, through any unforeseen circumstance, they should be neglected for a day or two. Now, that is a great deal in favour of planted-out trees, to say nothing of the drawbacks of a scarcity of water, which sometimes unavoidably occurs in the best arranged gardens, and which would be fatal to potted trees.

Then, as to the value of potted trees as against those planted out, I am prepared to assert that one quarter of a large house, which is devoted to planted-out trees, will yield more fruit (except cherries) than the whole of the other part devoted to pot-trees.

As to the plunging of potted trees, there is a diversity of opinion; but those who have had experience with both plunged and unplunged trees must acknowledge we obtain the earliest fruit from the unplunged trees, as the warm air of the house acts with greater force upon the roots; but, as a set-off against this, plunged trees, either wholly or partially, do not require so much water as those standing on the surface in pots; so that we see both systems have their advantages, and the latter is an important one where water is scarce, and where the labour power is scarce also. To extend the fruiting season over as long a period as possible, it is desirable to adopt both methods with an equal portion of the different kinds of trees grown.

## PREPARING AUTUMN AND WINTER VEGETABLES.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



ALTHOUGH the various quarters in the kitchen garden will, at the present moment, be mostly occupied with growing crops, plenty of work requiring attention will be found. In the first place, the hoe must be plied vigorously amongst growing crops to keep down weeds and to loosen the surface soil; the main crops of Brussels sprouts, broccolis, and kales of all kinds should be planted shortly; and the seed of many things for autumn and winter use must be sown.

With reference to hoeing the ground, it may not be necessary to say much beyond directing attention to the importance of keeping the weeds down and the surface soil loose. If the weeds are allowed to grow unchecked they will mature a crop of seed and scatter it in all directions, and when the autumn rains come the seeds will germinate and a vast amount of labour be entailed in destroying them. This work will be found more difficult by-and-by than it is now, as the ground will be moister on the surface and the sun will not be so powerful; consequently a very large proportion will take root again. Provided the work is done properly and in dry, sunny weather, every weed will perish and incur no further trouble.

Many years' observation has shown that crops of all kinds suffer less from drought and heat when the surface soil is loose than when it is quite firm; it would not be difficult to explain this seeming anomaly, but, for the present, it must suffice to state that it is the case.

In regard to planting the crops of winter greens of all kinds, it is with regret I have to acknowledge the existence of the pernicious practice of keeping the plants starving in the seed-beds until late in the season. It is not desirable to plant broccolis much before this month, and if they are put out next month they will do very well; but the kales and sprouts of all kinds cannot well be planted too early. When this work is deferred until late in the season, they have not time to complete their growth, and the crop is small in consequence. Quarters filled with early potatoes should be planted with greens as fast as they are cleared; but if the potatoes are planted the proper distance apart, and there is no chance of their being smothered, they may be planted between the rows at once. In certain cases, where it is not convenient to plant these things out for a short period, select an open piece of ground and prick them out a few inches apart each way; here they will become furnished with fibrous roots and acquire a considerable degree of strength by the time the quarters are ready for their reception. Another good plan is to thin out the seed-bed by the removal of the weakly plants; but it is

only practicable to adopt this plan when there is a larger stock than required.

It is desirable in taking up the plants to partly lift them with a fork or trowel, and thus prevent injury to the roots. In dry weather draw shallow drills and fill with water; when this is not done, the holes are frequently filled with dry soil, which runs down the side of the dibble, and the roots receive considerable injury in consequence.

The colewort is most useful for filling quarters which are cleared a month or six weeks hence, and a sowing made now will yield a supply of plants. They can be put out about a foot apart each way, and will form nice little hearts; they turn in very quickly, and when properly cooked are so fine in colour and delicate in flavour as to make a most acceptable dish. A second sowing, made early in July, will yield a stock of plants for a late crop, which will be in use from November to Christmas.

The crops of such things as beets, carrots, onions, and parsnips must soon have their final thinning; but as the carrots and onions are in constant request, it is not desirable to thin them to their full extent until really necessary, but, at the same time, they must not suffer from overcrowding. The hoe must also be plied vigorously between the rows to keep the weeds in check and the surface loose.

As scarlet-runners are so useful late in the autumn, after the principal crops of peas, cauliflowers, and other summer crops are past, it is a very good plan to make a sowing in the first or second week of this month. Sown at that period, the crop forms a capital succession to the early-sown crops, especially in early seasons. This year late-sown crops will not be so useful as in some years, for those sown early have not as yet made much progress. Dwarf French beans sown towards the end of the month will also yield a supply at a time when they will be much appreciated. All the beans enjoy a deep rich soil, but the dwarf varieties stand the drought better than many other things.

Late peas are generally acceptable; but it is not desirable in small gardens, because of the precarious character of the crop, to sow late. Those who determine upon sowing after this period should select the early varieties, such as Alpha and Ringleader. The Blue Prussian is also a very good sort for sowing. The position selected should be rather cool for sowing peas in summer, but it must not be shady, for all the heat obtainable in the autumn will be required for the production of good crops. The late varieties, of which British Queen and Ne Plus Ultra are the two best, when sown in April, will in ordinary seasons maintain a supply until a very late period. The main crops must have a little soil drawn up on each side of the rows to support them, and the sticks put to them before they attain a sufficient height to fall over. When they do this, it is impossible to stick them without injuring them very considerably.

The crops of turnips from sowings made now will be found very useful. They succeed admirably when sown in quarters from which the earliest crops of potatoes have been obtained, as a moderately rich and well-tilled soil is essential for the production of good crops.

In sowing turnip or cabbage seed during the summer season, it is most essential to keep a sharp look-out for the turnip-fly. As prevention is better than cure, it is advisable to dust the seed-bed with soot occasionally until the plants are in the rough late. The soot must not be too fresh, and it should be applied when the plants are moist from either the dew or rain.

## GARDEN GUIDE FOR JUNE.

**KITCHEN GARDEN.**—Asparagus not to be cut after the 15th, then to be cleaned over, and allowed to grow. Celery to be got into trenches as fast as the ground can be made ready by the removal of other crops. Take up each with a ball, and do not injure a single leaf. Hoe over those that are established in trenches, to break the surface that has been hardened by watering. The ground will be now, for the most part, covered, and everything in full growth. The hoe must never be idle; weeds grow faster than the crops, and exhaust the soil rapidly, and, if allowed to seed, make the mischief worse. Next to keeping down weeds, the most important operation is that of watering. Plants, when first put out, should not be drenched to excess, or the chill will check them more than a drought would, and it is better to trust to moderate watering and shade combined than to keep the soil saturated about plants that have barely taken root. Cucumbers, gourds, tomatoes, and capsicums may be put out; the soil should be rich; and, for tomatoes, a sunny aspect must be chosen. Manure-water should be freely used to all crops in full growth, and especially to strawberries, but there should be two or three waterings with plain water to one with liquid manure. Sow beet, early horn carrots, scarlet runners, and French beans, turnips, lettuces, radishes, cabbages, spinach, endive, cauliflower, and peas and beans. All salad plants should have a shady position, or they may run to seed. Dress asparagus and seakale beds with one pound of salt to every square yard, and give asparagus beds strong doses of liquid manure from horse-dung.

**FRUIT GARDEN.**—Apricots to be thinned, young shoots nailed in, caterpillars destroyed, and water-engine used smartly, if any sign of fly, which rarely troubles them. Search among raspberries every morning for snails, which take shelter on the stakes and among the side-shoots. If large fruit are required, thin the blooms at once, and give liquid manure. Stone-fruits look well this season, and no blight yet; but it may come suddenly, and must be prepared for. Disbud and nail in. Pot trees to have plenty of water, and, if weakly in their new growth, pretty strong liquid manure will be of material assistance.

**FLOWER GARDEN.**—French and other asters may now be turned out in the places where they are to bloom; make the ground rich, and choose showery weather. If the place is infested with snails, plant a few small lettuces behind the back row, which may be pulled



up as soon as the asters are well rooted. Those to flower in pots to have a good shift and cold frame. The dwarf varieties are the best for the latter system of culture. Newly-made lawns require a little special care at this season. If the grass is thin, it must not be mown and swept in the usual way, for the roots of young grass suffer from the effects of a hot sun when there is not a close bottom to preserve moisture. It is a good plan to mow early, and leave the mowings till the evening, then sweep and clear up, and the grass will have twenty-four hours from the morning before the sun comes on it again. Where walks look dingy, a turning with a fork and a good rolling is often as effectual a reviver as a supply of new gravel; but if the old gravel is of trifling depth or a bad colour, a new coating will complete the beauty of the garden, and give it a necessary finish. Dahlias planted out to be staked before the roots extend. Plant out all that are in pots at once; they will do better in the ground now than with any more nursing. The shoots of dahlias may be bent down, so as to render very short stakes sufficient. Those not staked should be attended to forthwith; indeed, the stakes should be put in at the time of planting, so as to avoid damage to the roots when they have begun to grow. Carnations, picotees, and pinks may now be propagated by pipings on the north side of a fence, or in pots, half filled with sandy loam. The old plan of striking them in heat and in exciting composts is quite unnecessary. Ranunculuses will want water frequently; they cannot endure drought, and beds of valuable kinds must be placed in the same way as tulips, with netting or canvas. Pansies strike readily from short side-shoots; the old hollow stems will strike also, but never make good plants; the new growth is that to be depended on. Annuals of quick growth, sown now, will bloom late for succession. Nemophilas never make a better effect than from sowings in June, in moist, shady places. Asters and balsams to be planted out during moist, dull weather. Perennials should be sown for next season's blooming, so as to get strong plants. Sow thin in nursery beds, and prick out the plants in rows as soon as they make rough leaves. If left crowded together, they grow spindled, and never make strong plants. Americans newly planted must have abundance of water, overhead as well as at the root. Remove by carefully snapping out with finger and thumb the dead blooms of rhododendrons and azaleas, to prevent seeding. Auriculas will want occasional fumigating; keep them in a cool place, on a hard bottom, and pour water amongst them on the ground surface to cause a moist air. An old light may be rested on pots over them during storms; otherwise, let them have the benefit of all showers.

**GREENHOUSE.**—To prolong the beauty of the plants in flower, put up a shading of tiffany. Azaleas not yet done growing keep moist and shaded, but beware not to push the growth too far, as, unless they are well ripened and rested, there will be few flower-buds formed. There is not much danger of that, however, just yet, except with those forced early. Plants that are leggy are likely to throw out shoots along the stems, if laid on their sides. Cinerarias may now be earthed up, to promote the rooting of the suckers.

Throw away all seedlings of inferior quality, and propagate only the best. They require a cool, shady place while making suckers, which are to be removed as soon as rooted. Sow seed for next year, and pot off rooted cuttings. Camellias may be got out in a shady place, on a bed of tiles or coal-ashes, and kept frequently watered. If kept in the house, there must be air on night and day. This hot weather will ripen the wood to perfection for next year. Fuchsias, keep well shaded, well watered, well ventilated, and with a cool, moist bottom. Plants from spring cuttings will be useful in five and six-inch pots, to keep the house gay in company with balsams and other summer flowers. Pelargoniums done blooming should be cut in, and allowed to break before repotting. They should be kept rather dry, so as to break slowly, and, when potted into small pots, put in a cold frame; and kept close, till they begin to make fresh root, when they must have plenty of light and air. The time is now arriving for clearing out the house, and giving it any necessary clearing and repairs, and cold frames should be provided in good time to receive those plants that are not to be turned out of their pots for the summer.

STOVE.—Liberal waterings must now be given, and abundance of air, especially among hard-wooded plants. Pines, same treatment as last month. New Holland plants should be encouraged to grow, and liberal shifts given as required. A large number of the orchidaceous plants imported from the eastern parts of the world will now require abundance of water. Advantage may be taken of sun-heat to lessen the expenditure of fuel; but there must be some ventilation. Orchids on blocks and in baskets require to be well soaked occasionally; and for this work a large wooden pail will be found the most useful, as it will admit of the plants being properly immersed, without injury to the roots or leaves. *Cymbidium eburneum* and *C. giganteum* will probably require repotting now, and, in so doing, strong plants may be increased by dividing the bulbs.

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## NEW BOOKS.



THE "Tropical World," by Dr. G. Hartwig (Longmans) treats of "aspects of man and nature in the equatorial regions of the globe." It is a fine useful compromise between strong philosophy and entertaining anecdotes, and about as good an example of what a book of "popular" science should be as any we can call to mind. The author has selected a number of the most striking phenomena of equatorial climates for illustration, and he tells us of strange people, curious animals, great forests, wonderful rivers, and the insect and reptile productions of the torrid zone, in a series of light chapters, which usually contain as much information as anybody wants, and are lighted up with beautiful pictures and relations of romantic incidents.—"Scott's Orchardist," by Mr. John Scott, of Merriott, Somerset, has been noticed while in course of publication, and we

have now to say that the second edition is completed, and forms a handsome octavo volume of over 600 pages. It comprises chapters on fruit-culture, and lists of fruit varieties, with disquisitions on stocks, seedlings, climates, soils, and other cognate matters. The hand of the master is everywhere visible, and it is quite certain that we have now a trustworthy guide to the fruit garden, which must be consulted by those who are not content to be the victims of the many strange delusions that have been current of late years. Those who wish to purchase the "Orchardist," must order it of Mr. Scott, Merriott, Somerset.—The "Canadian Fruit, Flower, and Kitchen Gardener," by W. D. Bendle, Esq., published by J. Campbell and Son, Toronto, is an important addition to the literary products of the Dominion. In a neat octavo, freely illustrated, the author describes the course of culture adopted in Canada for the production of fruits, vegetables, and flowers, and, as a matter of course, the culture differs in many particulars from that which obtains in England, owing to the differences of climate between the two countries.—"The Gladiolus," by Rev. H. H. Dombain (Reeve and Co.), is a handy shilling treatise on the cultivation of this favourite flower. The author is one of the best judges and most experienced cultivators of the gladiolus.

## HORTICULTURAL AFFAIRS.



**ROYAL HORTICULTURAL SOCIETY.**—EXHIBITION OF AURICULAS, AZALEAS, AND ROSES, May 7 and 8.—The exhibition of Auriculas, Azaleas, and Roses, on the above-mentioned dates, was of the most satisfactory character. The Azaleas and Auriculas were exceedingly good; but the Roses were simply magnificent; and the specimens of the latter exhibited by Mr. Charles Turner, of Slough, have never been equalled. Several interesting groups of miscellaneous plants were also contributed. In the first-prize collection of twelve roses in pots, Mr. Charles Turner presented magnificent specimens of Beauty of Waltham, Anna Alexieff, Céline Forestier, Victor Verdier, Paul Verdier, Paul Ricaut, Madame de St.-Joseph, Alfred Colomb, Charles Lawson, Souvenir d'un Ami, Souvenir de la Malmaison, and Général Jacqueminot. In the first-prize group of six, from the same exhibitor, the varieties staged were Madlle. Thérèse Levet, John Hopper, Victor Verdier, La France, Miss Ingram, and Maréchal Vaillant. The plants were remarkable for their immense size, the large number of flowers with which they were furnished, and the extreme richness of the foliage and the freshness of the flowers. Messrs. Paul and Sons, Cheshunt, were second in the great class for twelve, and had, amongst others, fine examples of Madlle. Thérèse Levet, Dr. Andry, Madame de St. Joseph, Madame Victor Verdier, and Horace Vernet. The amateurs' classes for Azaleas were well filled, and the plants were mostly presented in very good condition. In the class for six, the first prize was awarded to Mr. Hetherington, Clapham Park, who presented tall, pyramidal specimens, somewhat stiffly trained. The competition in the amateurs' class for three was exceedingly good, and in the first-prize group, contributed by Mr. Ward, gardener to F. G. Wilkins, Esq., occurred a splendid specimen of the showy Azalea sinensis, which is not grown so extensively as it should be; Mr. Ward also had Louise Margottin, white striped with pink, and Duc de Nassau, deep rose. The display of Auriculas was exceedingly interesting to the general visitor, as well as to the fanciers of these beautiful flowers. Mr. Charles Turner was awarded the first prize for a collection of twelve show varieties, which consisted of Turner's Rev. F. D. Horner, green edge; Beeston's Apollo, grey edge; Turner's Charles

June.

Perry, blue self; Cunningham's John Waterston, grey edge; Oliver's Lovely Ann, grey edge; Turner's Cantab, dark self; Keye's Topsy, dark self; Headly's Arabella, white edge; Headly's Alderman Wisbey, a splendid grey-edged variety; Turner's Mrs. Marsden, self; Turner's Colonel Champneys, grey edge; Lightbody's Richard Headly, grey edge. The Rev. H. H. Dombraun, Westwell Vicarage, Ashford, was second with fine examples of Lancashire Hero, Traill's General Neil, Hogg's Waterloo, Headly's George Lightbody, Turner's Colonel Champneys, Popplewell's Conqueror, Hudson's Apollo, Lightbody's Robert Traill, Waterhouse's Conqueror of Europe; and Mr. James third, with Miss Webster, Miss Smith, Richard Headly, Duke of Cambridge, Mrs. Sturrock, John Bright, Smiling Beauty, Lovely Ann, Miss Martin. In the amateurs' class for six show varieties, the Rev. H. H. Dombraun was first, with splendid specimens of George Lightbody, General Neil, Ne Plus Ultra, Apollo, Model, and Robert Traill. Mr. James, who was second, had Lovely Ann, Smiling Beauty, True Briton, General Bolivar, and Competitor. Alpine Auriculas were exhibited in splendid condition by Mr. C. Turner and Mr. James. The first-mentioned exhibitor had excellent examples of Landseer, Queen Victoria, Chieftain, Susie, Matthew's Diamond, Stony Rival, Mercury, Beatrice, J. H. Nelson, and Lady Elvey.

FIRST SUMMER EXHIBITION OF THE ROYAL BOTANIC SOCIETY, May 14 and 15.—This exhibition was considerably better than those which have been held during the last two years, and was altogether most interesting. Stove and Greenhouse plants, Roses in pots, and Cape Heaths were exceedingly good, and Azaleas and Orchids were also tolerably well represented. The lead in Stove and Greenhouse plants was taken by Mr. T. Baines, gardener to H. S. Micholls, Esq., Southgate House, Southgate, who was first in the class for nine and also for six. The collections consisted of the most magnificent specimens. In the collection of nine were large and beautifully-finished specimens of *Anthurium Scherzerianum* with about thirty splendid spathes, *Eriostemon cuspidatum*, *E. nerifolium*, *Azalea Magnificent*, *A. Duc de Nassau*, *Aphelexis macrantha purpurea*, and *Boronia pinnata*. In the collections of six were grand specimens of *Azalea Iveryana* solid with bloom, *Hedera fuchsoides*, *Ixora coccinea* with glorious trusses, *Erica Cavendishi*, and other well-known subjects. Mr. Ward, gardener to G. F. Wilkins, Esq., Leyton, was a capital second with nine; and the second prize for six was awarded to Mr. W. Chapman, gardener to J. Spode, Esq., Rugeley, for a neat and well-matched collection. In the trade class for six Stove and Greenhouse plants, Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, and Messrs. T. Jackson and Son, Kingston-on-Thames, were first and second respectively. The former had, amongst other things, good specimens of *Acrophyllum venosum*, *Polygala oppositifolia*, and *Anthurium Scherzerianum*, and in the collection from Messrs. T. Jackson and Son occurred good examples of *Pimelea Hendersoni*, *Clerodendron Balfouri*, and *Rhododendron Countess of Haddington*. In the open class for twelve Azaleas in twelve-inch pots, Mr. Charles Turner, of Slough, exhibited a very pretty group of standard specimens, in which the most attractive varieties were Charles Henke, Hooibrinki, Duchesse Adelaide de Nassau, Duc de Nassau, Roi Léopold, Countess of Flanders, Mons. Barillet, Etendard de Flandre, and Marie Vervaene.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We have to inform our readers that the Anniversary Dinner in aid of the funds of this admirable institution will take place on Wednesday, the 2nd of July, under the presidency of the Right Hon. Lord Henry Lennox, M.P.

THE NEW PRESIDENT OF THE ROYAL HORTICULTURAL SOCIETY.—At a recent meeting of the Council, Viscount Bury, M.P., was unanimously elected president of the Royal Horticultural Society, until the pleasure of her Majesty may be known in reference to appointing a successor to the Duke of Buccleuch, who has declined to accept the office.

MR. W. PAUL'S EXHIBITION OF ROSES in the gardens of the Royal Horticultural Society was most successful in every respect. It included an immense number of specimens of various sizes, well furnished with gradually-developed flowers. The roses were arranged on the turf banks of the large tent, at the lower end of the gardens, and as they were judiciously intermixed with trees remarkable for the beauty of their foliage, a most beautiful and picturesque effect was produced.

THE BATH SHOW.—This exhibition promises to be one of the most successful of the provincial exhibitions of the Royal Horticultural Society. The arrangements



are in a forward state, and every effort is being made to have everything in readiness for the reception of the horticultural and other productions at the proper time. The principal tent will be 260 feet long by 120 feet wide. The department set apart for implements, garden elegancies, etc., will be very complete, and form a prominent feature of the exhibition.

**THE RHODODENDRON SHOW IN THE ROYAL BOTANIC GARDENS, REGENT'S PARK.**—The exhibition of Rhododendrons in the gardens of the Royal Botanic Society, in the Regent's Park, was this season provided by Messrs. H. Lane and Son, of Great Berkhamstead, and was very successful, as the whole of the plants were so well flowered as to be nearly solid with bloom.

**NEW BOTANICAL CLUB.**—We learn from "Nature" that Dr. F. A. Lees, and Mr. T. B. Blow, propose to form a club under the name of the Botanical Locality Record Club, the object of which shall be to collect and keep a record of the exact localities of all the rarer British plants, with the dates of the latest observance of each, to be published yearly at the end of each season. The yearly report, containing not only a detailed list of the localities, but also a geographical summary of each year's work, is to be published and distributed only to members of the club, and to certain learned societies; to the former a subscription of 5s. will be charged. The names of botanists desiring to become members, are to be forwarded to Mr. T. B. Blow, Welwyn, Hertfordshire.

## TO CORRESPONDENTS.

**GERANIUMS.**—*T. W., Portland Road, Bath.*—Mr. H. Cannell, Station Road, Woolwich, S.E.

**GRUBS.**—*J. H. H., Bulwick Rectory.*—The best way of dealing with soil infested with grubs in the manner mentioned, is to expose it to a fierce heat before using it. It may, for example, be put in an oven for a few hours. The plants cannot be watered with any preparation for the purpose of destroying the grubs, because anything strong enough to destroy them would also kill the plants. A considerable number of grubs may be destroyed without disturbing the plants by carefully turning them out of the pots, and searching for them round the outside of the ball of soil, and then returning the plants to the pots again.

**ROSES.**—*S. W. W.*—The plan you have already adopted is the only one by which the pests can be destroyed. It will require a considerable amount of labour to keep them in check, but you will find that perseverance in this case will meet with an ample reward.

**ROSEA REGELIANA.**—*H. J. Bartlett, Lewes.*—This showy and interesting rose is entered in the catalogue of Mr. W. Bull, King's Road, Chelsea, and the price is 7s. 6d. You will, therefore, experience no difficulty in obtaining it in England.

**PLANTING FLOWER GARDEN.**—*Wordsley.*—The proposed arrangements are not perhaps quite satisfactory, but as we suppose they are made with a view to utilize the stock of plants available, it is not desirable to alter them. We would, however, observe that where you propose to have an edging of *Lobelia speciosa* it will be more satisfactory to have a thin line of *Cerastium* next the grass and set the band of *Lobelia* farther back. *Cineraria maritima* is not a good edging to a bed filled with Mrs. Pollock and other geraniums with golden variegation in their leaves; and Golden Feather is most unsuitable for edging beds filled with geraniums having white variegation in their foliage.

**GENTIANELLA.**—*G. H. Cook, Wanstead Vicarage.*—Mark out the bed to be occupied by the Gentian, and take out the soil to a depth of fifteen or eighteen inches, then fill the space with a mixture of turfy loam and stones of moderate size. Allow a portion of the latter to project just above the surface, and then plant strong tufts between them. When once planted they must be left alone, for they are most impatient of being disturbed; in fact, one of the most essential points in their cultivation may be said to consist in leaving them alone.

**AURICULAS.**—*George King.*—Your communication has been placed in the hands of our valued contributor, and he regrets to say that he is unable to afford any assistance in the matter. He is also sorry that the fine varieties mentioned have

June.

during the last five years become so scarce in the trade. If Mr. Turner is unable to supply them, there is not much probability of their being procurable.

**CLEMATIS.**—*C. H. S.*—The clematis are propagated readily by grafting, but the best plan for an amateur to adopt is to layer the shoots. This may be done in June or July, but care must be taken so as not to injure the shoots, for they are exceedingly brittle and require careful handling. The shoot should be partly cut through near a joint, and then pegged down, and covered with an inch or so of soil. The flowers were smashed in the post and could not be identified.

**FERN.**—*Old Subscriber.*—The fern is not the variety mentioned, but *Polystichum lonchites*.

*W. A. Holmes, Peckham.*—A letter addressed under cover to the Editor would reach the writer of the article referred to, but it is desirable that you should distinctly understand that the writer's time is so fully occupied as to render it impossible for him to reply privately to your letter. The most desirable course would be to make your inquiries through the medium of the *FLORAL WORLD*. We would also take advantage of this opportunity for requesting, as a special favour, our readers not to write privately to our contributors, thereby imposing a private correspondence upon them relating to matters arising out of communications appearing in these pages which is quite unjustifiable and, moreover, unnecessary. So great a tax has been imposed upon some of our most valued coadjutors by correspondents writing to them, that they have been compelled to write anonymously, instead of under their full name and address.

**PETUNIAS.**—*Lady Amateur.*—A selection of good sorts well grown will make a grand display. Double varieties are decidedly the best for indoor work, and are of little use for bedding. They do not stand the weather so well as the single varieties. Grow in medium-sized pots near the glass, and expose the plants to a free circulation of air. Keep them well stopped back until nice bushy specimens are formed. Pot in silky loam and rotten manure, two parts of the former to one of the latter. After the pots are full of roots, give frequent doses of weak manure-water, to keep them growing vigorously.

**SPOT ON ORCHIDS.**—*E.*—You have exposed the plants to a sudden change of some sort, or else kept them in full growth through the past winter. Either would produce the mischief complained of. Nothing will eradicate the spots. The only remedy is to pay particular attention to them, and help them to grow out of it. The worst treatment these plants can have is to keep them in a high temperature with an abundance of moisture, both in the atmosphere and at the root for a time, and then expose them to a low temperature by a suspension of fire-heat and too much air. Act in moderation with them for the future.

**PROPAGATING FUCHSIAS AND GERANIUMS.**—*M. W.*—Fuchsias can be propagated all the year round with proper convenience. With the aid of a cold greenhouse or frame only, from April to September is the best time for propagating them. Zonal pelargoniums are best struck in August and September. With regard to the proper time for propagating other hard and soft wooded plants, everything depends upon what they are. Cuttings of zonal pelargoniums strike with a greater degree of certainty inserted in an outdoor border fully exposed to the sun. They will also strike freely inserted in pots and stood out of doors. The young wood of the fuchsias intended for cuttings should be firm, and about half-ripe if intended to be struck without artificial heat; but when the assistance of heat can be had, it is no matter how soft the cuttings may be. Fill the pots with light sandy soil, and then place a layer of sand over it. Insert the cuttings firmly, and put the pots under a hand-lit or in a close frame until the cuttings are rooted.

**LILIUMS.**—*M. H.*—The mentioned lilies are quite hardy. We advise you to stand them out of doors in a partially-shaded position until the flowers begin to expand, when, of course, they can be removed to the conservatory. As the plants have now made considerable progress, and the pots are full of roots, water them with weak liquid manure. Place them in an airy position a week before standing out of doors.

**SEEDLING GERANIUMS.**—*H. G.*—It is best to flower seedling geraniums in 48-sized pots. If you bed them out many of them will not flower this season, and those that do flower will be so various in character as to have anything but a pleasing appearance. Pot them in rather light loam; do not prune or train them, but let them grow as they like till they flower.





*ORCHIDACEAE* *VERBACEA*



## MASDEVALLIAS.

BY W. GEDNEY,

Head Gardener to J. C. Day, Esq., Tottenham.

*(With a Coloured Illustration of Masdevallia Harryana.)*

AMONGST the orchidaceous plants suitable for cultivation in cool houses, the Masdevallias will eventually occupy a high place. They are all neat in growth, possess a hardy, vigorous constitution, and are, moreover, remarkable for the surpassing beauty of their flowers. They also possess another good quality, which will not fail to be appreciated by the amateur, and that is, the simplicity of the culture necessary for the production of good specimens. In the latter respect they are quite unsurpassed, for they are more easily grown than the commonest geraniums, and they possess a considerable advantage over the latter class of plants, for they cannot be so easily killed by bad management. They are, especially some of the best species, rather expensive, and there is every reason for supposing they will command a high price for some time to come, because of their great and increasing popularity.

Some of the species have been known in collections for a considerable number of years past; but it is now a very rare occurrence to meet with fair specimens, for they have been usually placed with the kinds requiring a high temperature for their successful cultivation, whereas a great heat is not only quite unnecessary, but extremely hurtful to them. The most showy kinds, of which the lovely *Masdevallia Harryana* is one of the best, have been introduced within a comparatively recent period, and it is only within the last year or two that they have been introduced in sufficient quantities to admit of their being placed within the reach of the amateur. Now, however, small, well-established plants may be procured at the principal metropolitan nurseries, and may be obtained at prices ranging from three to ten guineas, according to the rarity of the species and the size of the plant.

In purchasing Masdevallias, it will be well to bear in mind that, like other orchids, all those at present known to English collections vary considerably in the beauty of the flowers, and in every case it is desirable to buy them when in flower, although the trade growers usually assort them, and fix the prices in an equitable manner.

A very few words will suffice to convey a clear idea of their cultural requirements. As no one requiring information respecting their cultivation will have a sufficient number to require a house especially devoted to them, it will suffice to say they are quite at home with the Odontogloss and other cool orchids, which succeed best in a structure the temperature of which is maintained between 40° and 45° during the winter, and 50° and 60° during the summer season. An open compost and efficient

drainage are both essential, for abundant supplies of water will be necessary, and the proper means must consequently be resorted to for preventing the material about the roots becoming sour. A mixture of sphagnum moss and fibrous peat of good quality, chopped up moderately and well incorporated together, will suit them admirably; indeed, nothing better could possibly be had. The pots will require filling to about half their depth with clean crocks, and the largest pieces put in the bottom, with the



MASDEVALLIA IGNEA.

smaller ones spread over them. In repotting established plants, the loose material must be removed, and the outside roots loosened slightly, when it can be done without the slightest injury to them; and in all cases the base of the pseudo-bulbs must be raised slightly above the level of the rim of the pot. They at all times require liberal supplies of water, and from the end of February until the beginning of October they will require watering every day. During the winter the watering must in a great measure be regu-

lated by the needs of the plants and the weather. In other respects they thrive under the same conditions as the Odontoglossums and other orchids with which they will be associated.

The undermentioned are those which can be the most heartily recommended to the notice of cultivators. In addition to these, a few have been imported and described, which can only be regarded as curiosities.

*Masdevallia chimera*, a splendid species; flowers large and handsome; colours orange, yellow, and white.

*M. coccinea*, a very pretty species; flowers brilliant red.

*M. coriacea*, a pretty dwarf-growing species; flowers creamy white, spotted with purple, less attractive than some others, but very interesting.

*M. elephanticeps*, a grand species; flowers large; colour crimson, beautifully shaded with magenta.

*M. Harryana*, a superb species; flowers large, and generally of the richest shade of magenta. There are several varieties of this species, and some produce flowers of a brilliant red shaded with magenta.

*M. ignea*, flowers of medium size; colour bright red-scarlet, shaded crimson.

*M. Lindenii*, flowers of medium size; colour rich magenta-crimson.

*M. Tovarensis*, inferior in beauty to the others, but desirable in a collection; flowers pure white.

*M. Veitchiana*, very attractive and beautiful; flowers scarlet and orange.

## YELLOW ROSES.

(Concluded from page 167.)



**NOISETTE.**—The leader in this important section is the far-famed *Marechal Niel*, of which we presented a portrait and biography, and certificate of character, in the May number of the *FLORAL WORLD*. It is the finest of all the yellow roses, and has the additional merit of a good constitution. For growing under glass it is admirably adapted, being tender enough to enjoy the shelter; but it should be planted out in a good border, for it is too vigorous for pot culture, except when young or when particular attention can be given it, for the development of its full power. It thrives on any kind of stock; but its own roots are the best roots, and, happily, it strikes as easily as a Boursault, and when on Manetti, if planted rather deep, it readily makes roots above the point of junction with the stock.

The commanding splendour of *Marechal Niel* has diverted attention from certain other varieties of the same great section, which the enthusiastic rosarian will value when he has learnt to manage them. Among the yellow Noisettes there are a few which will thrive any-

where, and require very little care to insure an abundant bloom; but these are not the kinds that the rosarian becomes excited about. Anyone can grow *Ophirie*; if never pruned at all it will always grow neatly, and cover itself with flowers. So will *Desprez à fleur jaune*, which is usually, for shortness, designated "*Jaune Desprez*." Give it a warm position, either on a wall, as a standard on the brier, or as a pillar rose on Manetti, and it is sure to bloom abundantly; and charming things its flowers are, and with a delicious fragrance. We had a fine *Jaune Desprez* on a six-foot brier, trained on a south wall; it covered a space of about 200 square feet, and was literally dense with roses for three or four months every year. The cruel winter of 1860 destroyed rose and stock together, its age being then about fifteen years. In its curious mixture of colours, red, sulphur, flesh, and buff, this may be considered a companion rose to the noble *Gloire de Dijon*.

We come nearer to the true yellow in *Solfaterre*, which was introduced by Mr. Rivers in 1842, and has always been a favourite. The colour is pale sulphur, the flowers are large and very double, and the tree grows with great vigour. Very like it is *Lamarque*, a most beautiful sulphur-yellow rose, and one of the finest wall-roses known. *Triomphe de Rennes*, a true *Noisette*, with large canary-coloured flowers, is hardier than the two foregoing, and bears the smoke of towns tolerably well. At Stoke Newington it grows and blooms superbly as a standard, exposed to all the winds of heaven. *Celine Forestier* is another true *Noisette*, of vigorous habit, as hardy as the last, and very adaptable to any situation where a rose of any kind will grow. The flowers are pale yellow, very pure and bright, large and full, and are very freely produced if the tree is scarcely at all pruned. The best way to manage it is to cut back a few of the longest rods every spring, leaving always about half the shoots to flower, and the other half to grow. In a good season, the shoots that were pruned will flower in the autumn as well as those left unpruned. It bears smoke well, and grows freely on any free stock. The best place for it is on a west wall, where the strong shoots can be trained in their full length, or as a standard on a brier; for when grown as a bush it is too straggling unless much pinched in, and that is apt to endanger the flowering, though the stubby side-shoots which follow are sure to flower the next season if left alone. *Mlle. Aristide* is another vigorous grower, with a decided trace of the Tea rose in its constitution. This requires a warm wall, and grows best when worked on the Banksian rose, but it will do on the brier. The flowers are pale yellow, with salmon centre, and if the tree is well fed, the flowers are large and full.

Among the strong growers we have now only three left, and they are fine old favourites. *Cloth of Gold* is truly magnificent when brought to perfection; the colour pure gold yellow, the form globular, very large and double. *Isabella Gray* differs from it in being a shade deeper in colour towards the centre. When well grown it opens freely, but is rather deficient in form; there is a sort of squareness about it which the experienced eye detects at a glance. But very often this rose does not open well, and it is very shy of




blooming under all ordinary circumstances. The last of the three is *Jane Hardy*, flowers deep gold-yellow, small, but pretty; the habit that of a climber, and too tender to be used as a standard; though in a warm climate, as that of Jersey for example, where Cloth of Gold thrives amazingly, it would make superb weeping standards, that would look like tents of gold tissue when in full bloom.

Of the yellow roses enumerated above, there are four that call for special consideration as to the best means of securing a plentiful and an *annual* crop of flowers. These are Cloth of Gold, Solfaterre, Isabella Gray, and Jane Hardy. We omit from this consideration Marechal Niel, because it never fails to flower freely when planted in a suitable position. It is a fortunate thing that if we hit upon the right method of managing any one of these, that same method will apply to all the rest.

These delicately-constituted roses require a deep, rich, dry, warm soil. If wall and border could both be moderately heated, without covering with glass, there is no doubt these roses would surpass everything, in the way of roses, ever seen. To do so would be quite possible, but the majority of cultivators, and, for our own part, we cast our lot with the majority as having common sense on its side, prefer to attempt their culture with the heat of the sun alone. It will be understood from these remarks, that to plant any of these roses in a bleak position on undrained soil, or in poor, sour, pasty stuff, would be the height of folly. They might live, but they would neither grow nor bloom. A south wall has been pronounced by more than one authority as unfit for them; but this is a mistake. The fact is, the place cannot be too hot; but as tender plants on south walls are in more danger in winter than plants of the same kind on north walls, the cultivator must make amends by protecting, and there is nothing better for the purpose than a stout canvas fixed to a lath above the top line of the trees, and drawn down at night. The use of protection is perhaps of more importance in spring than winter; for, having secured a hot position and a thorough good border, the next step towards success is to promote *an early and vigorous growth*. Early formation of strong wood allows of its more perfect ripening by summer-heat; and if the wood be well ripened, there will be plenty of bloom to a certainty. There are two more points for the cultivator to fix in his memory—namely, to use the knife as little as possible, and to exercise patience, for these roses must be well established, and have had some years of growth, before they acquire a blooming condition. We must now speak of them separately, as to their individual needs and peculiarities.

Cloth of Gold will do as well on a brier as any rose known. It will also do well on the Banksian. It will also do for a time on Celine and Manetti stocks, but unless it makes roots of its own, and so becomes independent of the stock, it may perish just as it acquires the proper age to be in perfection. It is very important to bud on *established stocks*, as, when the junction has been effected, the rose makes that quick and early growth which is so essential to success; whereas, if the stock be only half rooted, the first shoots of the rose rise weak, and never afterwards acquire their proper vigour. As

the shoots rise, train them their full length upright till June, then untie or unnaïl them, and nail them in again in the form of half circles, or as near that figure as possible, thus:—



This bending of the shoots will promote the ripening of the wood; and if the season is hot and dry there will be an abundant production the next year of golden trusses *on the upper parts of the shoots*. As soon as the bloom is over, cut half the shoots back to plump buds at the base, train the shoots from these buds upright, and bend as before. By this treatment the trees will bloom again in autumn.

It really does not matter what stock Isabella Gray is worked on; but it must have a warm and dry position. To promote the formation of spurs it is necessary to hasten the growth by giving abundance of water, alternating with liquid manure, early in the spring, and to train in all the wood its full length and cease watering about the middle of July. As soon as these shoots begin to ripen, there will probably appear a second growth of shoots from the base, and these shoots must be suppressed, otherwise the formation of spurs will be prevented. If the season is tolerably dry, and the tree has plenty of sun, it will at once throw out spurs and bloom freely. As soon as the side spurs begin to push, the critical moment is past, the tree will now devote its energies to the production of flowers instead of new wood, and it may be assisted again with liquid manure. The next spring cut back a portion of these shoots, to induce a strong growth of new wood to go through the same process as the year before, and perchance on the shoots not pruned a few (or many) blooms will appear in May or June.

The first year that Isabella Gray was sent out, and when rose growers had no other subject to talk about, so thoroughly did it engross their attention, we purchased some plants of Messrs. E. G. Henderson, of St. John's Wood. They were in five-inch pots, worked on Boursault stocks, and consisted entirely of bloom spurs, the buds having been taken from ripe wood. There were some eight or ten wiry branches upon each, forming very compact little bushes. These little plants bloomed in the greenhouse in May, most beautifully, being completely covered with small but very perfect blossoms, of a rather pale gold colour, two or three shades paler indeed than the flowers usually come out of doors. When the bloom was over, they were cut back very close, and the pots were dropped into larger ones and rich soil rammed in between. They soon produced shoots which naturally broke into spurs, and bloomed tolerably well in the autumn. After blooming they were shaken out, repotted into seven-inch pots, and slightly shortened. In February they were put in a warm house and again bloomed as before; but the flowers were always pale, though they were always kept near the glass. In the winter of 1860 these plants were in an unheated structure, the pots were frozen through, and they perished

in company with a good collection of Tea roses that shared the same fate. They had, however, taught us a lesson, and that we hand over to all whom it may concern.

It is quite certain that any rose-grower, who has a warm wall and a dry border, may secure two crops of bloom every season from any of the yellow Noisette and Tea roses. Start them early, protect the young growth while spring frosts prevail; let the unpruned wood produce its flowers, then set it back and get an autumn bloom from the shoots of the season; or treat the spurs as apple and pear spurs which continue fruitful, and instead of cutting out the wood which produced them, shorten in the spurs to one or two buds as soon as the first bloom is over, and so cause them to renew themselves and flower again the same season.

The yellow Noisettes of less vigorous habit, should, except in the most favoured localities, be grown under glass. *Le Pactole*, a fine yellow, requires a warm wall, but does better under glass, and makes a good pot-plant. *Cornelia Koch*, delicate straw colour, and *Smith's Yellow*, lemon-colour or yellowish straw, are good forcing roses, but of little use out of doors. The best way to manage them as pot-plants is to train them spirally. They should be on their own roots to make nice plants. The following forgotten Noisettes have been carefully grown at Stoke Newington, and may be recommended to rosarians who sigh for a satiety of yellow roses:—*Clara Wendel*, fawn with yellow centre; must be grown under glass. *Vitellina*, colours mixed as in *Jaune Desprez*, but occasionally the yellow predominates; a vigorous grower, and flowers well after a hot season.

S. H.

## A RUSTIC PLANT-HOUSE.



IN the interest of our readers, we have considered it desirable to direct special attention to a combined plant-house and smoking-room recently erected in the garden of Stamford House, Stoke Newington, the residence of J. T. Pickburn, Esq. Preliminary to a description of this structure, of which two illustrations are given, it is necessary to say that Stamford House is one of the grand old mansions that now remain of the once rural and delightful village of Stoke Newington. At one time it commanded views of patches of cornfields, belts of woodland and flowery meadows, and a grand panorama, comprising, amongst other special features, the silvery windings of the Lea and the densely-wooded heights of Epping Forest. But now it is crowded up by the extension of the great Metropolis, and although it still commands pleasant prospects, it has become a town-house, comfortably screened from the noise and dust of the surrounding traffic by an ample extent of garden. The building itself is somewhat plain, although noble in appearance; but the entrance-court is, we are bound to say, one of the very best of its kind. The





RUSTIC PLANT-HOUSE, STANFORD HILL.





INTERIOR OF RUSTIC PLANT-HOUSE.

house is approached from the entrance-gate by a broad walk paved with tiles, the pattern being angular lozenges in black and white. On each side are broad borders, edged with bold mouldings in artificial stone, and well filled with evergreens of the choicest kinds suitable for town localities.

The garden is extensive for the situation, is well furnished with old trees, and comprises a good croquet lawn, a kitchen-garden, a well-stocked poultry-yard, conservatory, greenhouses, and vineries; for Mr. Pickburn has provided himself with glass sufficient for his requirements. Not the least important features of the garden are the borders, filled with the choicest old-fashioned flowers; but the summer bedders receive proper attention, and the flower-beds are so well filled, as to afford a rich, and, in every way, suitable, foreground to the masses of foliage beyond.

The most interesting feature, because of its distinctive character, is the combined plant-house and smoking-room. The walls are built with rough burrs, obtained from the brick-kiln, and are hollow. The hollow space is filled with a mass of soil, and a large number of ferns and alpine plants have been planted in the crevices and pockets, the intention of Mr. Pickburn being to cover the wall with luxuriant vegetation. A large number of plants have been planted some time, and are now making splendid growth, for the roots have penetrated into the soil forming the core of the wall, and found a plentiful supply of food. The interior walls and the lintels are faced with virgin cork, which gives the house a peculiarly rustic and pleasing appearance. In addition to the plants inserted in the wall, a large number are grown in pots, and arranged as shown in the view of the interior. The hanging baskets are also filled with suitable plants, and materially contribute to the picturesque and beautiful appearance of the interior. At the end opposite to the entrance is placed the smoking-room, which is entered by a few steps, from the top of which the whole extent of the house is displayed to great advantage. The interior view was taken from the door of the smoking-room. Our readers will therefore have a fair idea of the beauty of the scene when viewed as a whole. It will be seen by the external view that there is a side entrance to the apartment, enclosed with a verandah; this obviates the necessity of frequently passing through the plant-house, and is very convenient when many visitors are present. Mr. Pickburn has evidently designed his garden for enjoyment rather than display, and, without question, has succeeded in overcoming the difficulties of the situation, securing for himself and family a most pleasant retreat and cheerful playground, where nature would do absolutely nothing for either.

It is only proper to add that the whole of the constructive works alluded to in the foregoing remarks (including the stone work, plant-houses, and rustic-house) were executed in the most substantial and admirable manner by Mr. John Overall, of 16, Shacklewell Lane, Kingsland, who is one of the most experienced horticultural builders in the northern suburbs of London.

## RAISING HARDY PERENNIAL PLANTS FROM SEED.

BY THOMAS TRUSSLER, EDMONTON.



THE most attractive hardy herbaceous plants are once more enjoying *that* degree of popularity they so well deserve, a few words of advice on raising a stock will, no doubt, prove useful to the amateur. Herbaceous plants, it may be stated, can be propagated in two ways, one by means of cuttings, and the other by means of seed. To propagate the majority by the first of the two ways with any degree of success requires a considerable amount of skill, and entails no little labour, and what is of equal importance, it is necessary to have the command of a stock of plants for furnishing the cuttings. Hence it will be seen that raising them from seed will be the best way for the amateur, more especially as the seed can be procured at a cheap rate. In a catalogue of flower-seeds before me, which is issued by Mr. Thompson, of Ipswich, seeds of about two thousand plants are offered, and the majority of these are hardy perennials, and nearly all the remainder are hardy annuals. Thus it will be seen that there is no difficulty whatever in obtaining the seed, and for the comfort of those whose desires exceed the length of their purses, it may be mentioned that the price of the packets of seed average threepence each.

The month of March is usually considered the proper time for sowing flower-seeds of all kinds, and in consequence those who have not had the command of a hotbed, or some other source of artificial heat for starting the seeds, have considered it useless to sow them. Now, it cannot be too well known that hardy herbaceous plants can be raised most readily from seed during the summer season. Indeed, the summer is the proper time for the work, as the plants are then more robust, and altogether better than those raised in heat, and when they once become established, they make most rapid progress. In some few cases a stock of flowering-plants may be had in less time when the seed is sown in artificial heat, but unless under exceptional circumstances, the seed should be raised without its aid.

In raising considerable quantities of plants of the class here alluded to, the majority may be sown in the open border, but it is advisable to sow very small seeds in pans or pots, and place them in a cold frame. In sowing the seeds out of doors, make the soil rather fine by well chopping the surface with the hoe, and then remove the rough pieces and the stones with the rake. Then draw the drills about an inch in depth, and about nine inches apart. They should be rather broad at the bottom, as it will give the young plants more room than they otherwise would have, and render it unnecessary to transplant them at so early a stage, to prevent overcrowding. Previous to sowing the seeds in dry weather, it is a most excellent plan to fill the drills with water, and allow it to soak



away. When this is done, the seed will commence to germinate at once, whereas, if sown in dry soil, it will lay until the rains have moistened it sufficiently. This is a more important matter than may appear at first sight, as it will make all the difference between having, at the commencement of the winter, a lot of small seedlings or a stock of large plants of sufficient strength to produce a grand display of flowers the following season.

If the soil is heavy and not in very good working order, a barrowful of light sandy stuff, such as the refuse of the potting-bench



GLOXINIA-FLOWERED LONGGLOVE.

will be of great value for covering the seed with. In sowing in pots, pans, or shallow boxes it is simply necessary to place a few crocks in the bottom and then fill with light sandy soil and make the surface level. A covering of fine soil will then be required, and the pots can be placed in a cold frame, or on the shady side of a wall or hedge. The pots will, of course, require occasional attention for the purpose of keeping the soil in a moderately moist condition.

There is yet another way of sowing the seed, but it can only be recommended in the case of the strong growing subjects, such as the



foxglove, and that is to sow the seed where the plants are to remain. Where there are nooks and corners in a semi-wild state they may have additional beauty and interest given to them by the introduction of flowering plants of free growth and noble aspect. Indeed, a few dwarf-growing plants may also be most advantageously introduced for carpeting the surface. As a rule, it will be simply necessary to scatter the seed over the surface and then hoe over the ground for the purpose of covering it. The seed will germinate more quickly if the ground is moist, but it is not necessary to wait for a rainy day, as the seed will not take any harm by laying in the ground for a few days before it commences to germinate.

In the preceding paragraph, reference has been made to the foxglove as being the type of the plants best suited for semi-wild places, and certainly it is admirably suited for such situations. When in groups, with noble spikes of flowers ranging from four to six feet in height, it has a most striking and beautiful appearance. It is also well adapted for planting in groups, of about half a dozen plants, amongst the shrubs with which plantations in the pleasure-grounds are generally faced. There are a number of varieties, all of which are thoroughly good; the best are known as the Gloxinia-flowered foxglove, or *Digitalis purpurea Gloxinoides*, which produce flowers of large size, good shape, and are beautifully spotted. To prepare the plants for their permanent quarters, it is necessary to transplant them to a nursery-bed, for if they are planted out when in a small state the chances are that they will be either dried up or eaten by slugs. But by planting them in a nicely-prepared bed, where they can remain for six weeks or two months, they can be watered and shaded when they require that assistance. About three inches is a capital distance to put them apart in the nursery-bed. Some plants will not require transplanting provided the seed is sown thin.

The time for planting in the permanent quarters must depend upon circumstances. If the plants are strong they may be put out towards the end of September or in the early part of October, but otherwise it will be better to defer the work until March or April. Much, of course, depends upon the character of the plants, and the state of the weather and soil at the above-mentioned seasons. But as a rule it is of little use to put out small plants late in the season, for they seldom make so satisfactory a start as when kept in the nursery-bed and planted in spring.

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PARASITIC FUNGI. — Under the name of "Herbarium Mycologicum (Economicum)," F. Baron Thümen proposes to form a collection of those parasitic fungi which are injurious (including also any that are useful), in forestry, agriculture, horticulture, or in any other branch of industry. The specimens of each species will be labelled with the scientific name, diagnosis, and any needful remarks, and, where possible, will be sufficiently numerous for a portion to be submitted to microscopic examination. The collection will be issued in fasciculi of fifty species, at the price of three thalers each, and may be obtained of the collector, at Teplitz, in Bohemia.

July.

## GAY GARDENS IN SPRING.

BY JAMES FORD,

Head Gardener, Grange Wood, Norwood.



MUCH has been said in the pages of the FLORAL WORLD in advocacy of spring flowers, and in pointing out the way by which the flower-garden may be made to present a gay and festive appearance during the spring months, it is not needful to say a word in praise of the materials with which this desirable result can be produced. Spring flowers are, to my mind, as necessary as those flowering in summer; and there is really no material difference between the flower-beds being bare during the spring and summer months, for it is just as easy to have them gay at one time as the other. Indeed, if there is any difference, the spring season has the advantage, for all the spring bedders are of necessity perfectly hardy, and may be grown by those who have not any glass whatever in the garden. They are also so easily propagated that with but little difficulty they can be multiplied in any quantity by the amateur possessing but a small knowledge of plant culture. It must, however, be understood that having the flower-garden gay in spring as well as in summer, a double amount of work will be necessary, and a reserve ground, in proportion to the number and size of the beds, will be required for the accommodation of the plants during the summer.

The cultural details will be as brief as possible; but I hope, by arranging them under separate headings, to convey all the information required for making a satisfactory commencement. It may also be observed that in the garden here we employ the leading kinds by thousands; but the routine culture of a dozen is just the same as of a thousand.

**ALYSSUM.**—The yellow-flowered *A. saxatile compactum* is the best golden spring-bedder we have, and can be propagated from cuttings or seeds. The side-shoots, stripped off and inserted in a sandy soil, in a shady place, strike freely. The seed can be sown in the open border, or in boxes and placed in a frame. July is a capital month for sowing the seed and striking the cuttings; but the plants will require a year's growth before they will be available for the flower-garden. Therefore, when removed from the cutting-pot or seed-bed, plant them in nursery-beds, at a distance of four inches apart, in rows nine or twelve inches from each other. Excepting keeping them clear of weeds, they will require no further attention until they are removed to their winter quarters.

**ARABIS.**—The free-flowering *A. albidula* forms attractive masses of the purest white, and is remarkably accommodating, for tufts, even without roots, planted in the autumn will flower very freely. It, however, cannot be strongly recommended; for it blooms before any of the other things, and its beauty is gone before the main portion of the spring flowers are fairly in bloom. Plants broken-up and

planted in shallow trenches will become well established and form nice tufts by the autumn. The variegated form of the above is useful for edgings on dry soils, and can be increased in the same manner.

**AUBRIETIA.**—The best of these for spring bedding are *A. deltoidea grandiflora* and *A. grvea*, both of which produce purplish lilac flowers. They only attain a height of a few inches, and are best adapted for edgings. Pulled to pieces now and planted as advised for the *Arabis*, firm, compact clumps will be the result. Unless they are divided and replanted annually as here directed, they become straggling, and it is difficult to plant them neatly.

**CERASTIUM.**—The downy-leaved *S. tomentosum* makes capital edgings, provided good tufts are planted. When the cerastium is employed for edging purposes during the summer, it should not, unless unsuitable in the spring arrangements, be disturbed in the autumn, but, instead, trimmed slightly, to prevent the band becoming irregular.

**DAISIES.**—These are most useful, especially for small gardens. They are readily increased, and are very neat and effective in appearance. All the attention required is to divide the clumps, when removed from the flower-beds, and plant them nearly close together, in rows about six inches apart, and in the autumn they can be lifted and transferred to the flower-beds. As their usual height ranges from four to six inches, they must be used for edging purposes, when employed in conjunction with tall-growing plants; but beds filled with the several colours, nicely arranged, are exceedingly effective, as visitors to the gardens of the Royal Horticultural Society at Kensington during the past spring will be able to bear ample testimony. They can be moved at any season of the year, and when the stock is limited strong clumps may be divided into single crowns, and each piece will make a nice plant by the autumn. The *Double White* and *Double Red* are the two best; but the *Double Pink* is useful, and cannot well be dispensed with.

**IBERIS.**—The evergreen candytufts, *I. corifolia*, *I. semperflorens*, and *I. sempervirens*, form beautiful masses of white; but, unfortunately, they do not bloom early enough by a fortnight. The last-mentioned is the earliest in bloom; but the flowers are inferior to those of the first-mentioned, both in size and colour. They are, moreover, rather difficult to propagate, as they have to be increased by cuttings. The wood is usually in capital condition for propagating purposes during July, as it has then become rather firm. Take off the tops of the young shoots about three inches below the point, and after the lower leaves have been removed insert them in pans or boxes filled with sandy soil, and place them in a cold frame. In propagating large quantities it will be preferable to make up a bed of soil in a cold frame, or to insert the cuttings in the open border, and then cover with handlights. With ordinary care, in screening from the sun, and sprinkling them occasionally, they will be nicely rooted by the autumn; but as they will not be large enough to be of much service in the flower-garden the following spring, plant in nursery-lines in the course of the autumn or following

spring. To promote the formation of bushy plants, stop them once in the early part of the summer. With ordinary management in lifting carefully, and stopping moderately to keep them bushy, the plants may be employed for an indefinite number of years. In all cases the stopping must be done early in the season, to afford the young wood ample time for becoming well matured by the autumn. Seed of some of the kinds mentioned may be obtained, and sown in pans in the open border, according to the quantity. Two years will, however, be required before the plants are large enough to produce a distinct effect.

**FORGET-ME-NOTS.**—The pretty *Myosotis dissitiflora* and *M. sylvatica*, both of which have blue flowers and attain a height of twelve inches, are most useful. To obtain a stock, it is simply necessary in July to sow the seed, in shallow drills twelve inches apart, and at the proper time lift the plants in clumps and transfer them to their summer quarters. Previous to sowing the seed, fill the drills with water if the soil happens to be dry; otherwise it will be a considerable time before it germinates.

**PANSIES**, in moderately light or well-drained soils, are very effective for spring, but in wet and heavy soils they frequently perish in winter. To insure the most satisfactory results, a fresh stock must be propagated annually, as young, vigorous plants are the best able to contend with unfavourable weather during the winter. The tops of the young shoots which push up from the bottom must be selected for cuttings, and taken off just below the third joint, and the lower pair of leaves removed. They can then be inserted in boxes filled with light sandy soil, and placed in a cold frame. Shade and moderate waterings will be required, and to save the labour attendant on the use of shading materials, place the frame on the north side of a wall, building, or hedge. As soon as rooted, plant them out in a bed of well-prepared soil in a shady position, in rows nine inches apart, to afford them an opportunity of acquiring strength by the autumn. Not unfrequently, dividing old plants is resorted to as a means of increasing the stock; but it is a most objectionable plan, for plants so raised are ill able to resist the effects of a wet or severe winter. The most showy and free-flowering sorts, which will give a blaze of colour, are alone suited for bedding. The best of these are *Cliveden Blue*, *Cliveden White*, *Cliveden Yellow*, *Blue King*, *Great Eastern*, and *Cloth of Gold*. The first three are remarkable for their earliness and hardy constitution; but are far inferior in point of quality to the three last on the list, which includes the same colours. *Cliveden Purple* is also very rich in colour and free-flowering, and the four colours here mentioned are quite sufficient for bedding in gardens of all sizes.

**PHLOXES.**—The dwarf-growing sorts are most valuable for small beds, and for edging those of large size. They give us red and purple colours when they are scarce. The most attractive are *P. frondosa*, pink; *P. Nelsoni*, white; *P. verna*, pink.

**PYRETHRUM.**—The *Golden Feather* is very useful for edging purposes, and to have it in perfection during the winter and spring, sow in August and plant rather close together. Old plants, which



have done duty during the summer season, are comparatively worthless.

**SEDUMS AND SEMPERVIVUMS.**—The following are the most useful for edging:—*Sedum acre*, *S. acre aureum*, *S. anglicum*, *S. dasyphyllum*, *Sempervivum californicum*, *S. hirtum*, *S. montanum*. They can be increased by pulling large tufts to pieces in the one case, and by taking off the offsets in the other.

**SILENE AND SAPONARIA.**—The showy *Silene pendula* and *Saponaria calabrica* make charming pink beds. They must be raised from seed at the same time and in the same manner as the forget-me-nots.

**TRITELEIA.**—The pretty white-flowered *Triteleia uniflora* makes a charming bed; but as it is not so easily propagated, and requires time for the production of new bulbs after it has done flowering, it is better adapted for the permanent mixed border than for flower-beds.

**VIOLA.**—These require exactly the same management, in every respect, as the Pansies, and in alluding to them it is simply necessary to give the names of the best for our present purpose. These are:—*Blue Bell*, blue; *Lothair*, rich purple; *Lutea grandiflora*, yellow; *Imperial Blue Perfection*, deep blue; *Blue Perfection*, purplish blue; *Queen Victoria*, deep cobalt blue. The last is a fine new variety, at present rather expensive.

**WALLFLOWERS.**—The best of these are the *Blood Red* and *Tom Thumb Golden Yellow*. The intermediate shades are very good; but those here mentioned can be the most effectively blended with other flowers. They can be sown as advised for Forget-me-nots, or raised from cuttings in the same manner as the evergreen candy-tufts, and employed the following season in the flower-garden. They should be propagated as early as possible, and a sunny position selected for the nursery-bed.

Very effective displays might be made with a portion only of the above, and the amateur with limited means will of course commence with those which can be raised from seed. It may be mentioned that seed of all the foregoing subjects recommended to be increased by that means can be procured at a cheap rate; and in ordering the seed it will be advisable to mention the probable number of plants required, and thus make sure of obtaining sufficient. The small packets are of course of little service when a large stock is required. The plants should in every case be planted as early in the autumn as circumstances will permit, and rather close together, as there will not be time for them to spread much before winter sets in. Immediately the summer bedders begin to have an untidy appearance clear them away, dig up the beds, and plant the spring flowers.

**THE FLOWER SERMON.**—According to the *Rock*, this unique service was held, as usual, at St. Katherine Cree Church, Leadenhall Street, on Whit-Tuesday evening. The interest excited by the novel scene of hundreds of young people, each with a nosegay, crowding into an old City church, appears to be unabated. The flower sermon was preached, according to his custom, by the Rev. Dr. Whittemore, rector of the parish.

## FLOWER-BRACKETS.



HAVE read "A. H.'s" description of her flower-baskets with much interest, and, as my flower-brackets are much admired, I think a few words about them may be acceptable. These brackets are made of plain wood, either half-circles or oval; they are lined with zinc, and have two zinc supports to hang them up by. I cover them with virgin cork, wired on in pieces of unequal length, the edges of each piece rasped to make them fit together well. In these brackets I sometimes put bulbs, when in bloom, floating in water, and held up by moss, the effect being enhanced by tastefully trailing ivy, twined over the back or rising above the flowers, and apparently growing up the wall and encircling a picture. When bulbs are over, wild daffodils and ivy look lovely, arranged in different-sized medicine bottles and common champagne glasses; and, of course, all cut flowers, mixed with ferns and creeping plants, look well. I also use a corner of the drawing-room, with a pretty table covered with china *across* it, in this way. A three-cornered tin fills the corner, the outside edge covered with bark; this is filled with plants, especially ferns, the tallest at the back; and, if possible, some extra tall plant, such as the Calla, rises behind the table, being quite "put in the corner," where it has a most effective and beautiful appearance.

*Oddest, Bath.*

C. H.

## BEDDERS FOR NEXT SEASON.

BY JOHN WALSH.



THE bedding arrangements are now completed for this season, and before it is necessary to commence the formidable task of propagating a stock of bedders for next year, we shall do well to consider how much the collection of bedding plants can be improved by the addition of some of the most meritorious of recent introductions. Amateurs, as well as other classes of cultivators, have their favourite bedders; but there are certain things which are essential in all gardens, and to this class belong the few subjects which it will be my duty to direct attention. It will be well to observe also that there is a great advantage in considering this matter now, for plants purchased at once will yield a plentiful supply of cuttings, and a sufficient stock for producing a distinct effect by next season may also be had. Procured late in the autumn, or in the spring, there will not, with but few exceptions, be time to do more than propagate a few for trial purposes, and consequently a season will be lost.

Amongst the new golden-leaved bedders there are a few which demand our attention for their great value. The Golden Thyme, sent out under the name of *Thymus citriodorus aureus marginatus*, is a real gem; for it forms neat bands and lines, is easily kept in

proper order, and is quite hardy; it is, in fact, one of the best edging plants in existence, and may be most advantageously employed instead of the Golden Feather, of which we are now pretty well tired. The *Golden Fleece Thyme*, distributed this season by Messrs. E. G. Henderson and Sons, has self-coloured leaves of the richest gold, and is said to be a good bedder; but sufficient time has not elapsed for its character to be verified, but so far it possesses a rather strong constitution, and is rich in colour. Both these may be propagated *ad lib.*, as the point of each of the shoots will make a cutting, and the cuttings strike very freely. In planting thymes in the flower-garden it is desirable to select beds occupying sunny positions, and not to water them overhead, for the first-mentioned more especially loses its fine rich colouring when watered artificially. Another splendid golden-leaved bedder is Hibberd's *Meridian Sun* geranium, a plain-leaved variety, which is dwarf and spreading in growth, and whether exposed to sunshine or rain, is remarkable for the splendid display it makes. The leaves resemble in colour a well-ripened orange instead of the yellowish-green hue common to geraniums of this class. This may of course be propagated, freely in the open border, and as it may be purchased for a few shillings per dozen, it will not be an expensive affair to get up a good stock for next year. *Coprosma Baureana variegata* has been known in gardens for five or six years; but it is only within the last year or so that its capabilities as a bedding plant have been tested. For edging and panel beds it is most valuable, the richly-variegated and glossy leaves forming one of the most effective bands imaginable. It is very difficult to propagate, and the best way of obtaining a stock is to plant them out in a bed of nicely prepared soil, and peg the branches down and cover them to the depth of an inch or so with nice light and sandy soil. Roots will be emitted from the branches throughout their entire length, and if the plants are furnished with long straggling branches, a good stock may soon be procured, for the stems may be cut into as many lengths as there are small secondary shoots, and each piece will make a well-established plant by the following spring. It will be a greater convenience to plant them in clumps of a convenient size for covering with a handglass, in case they should not be rooted sufficiently for taking up before the first few frosts. The variegated *Coprosma* requires no special attention when planted in the flower-garden, except pegging-down the longest shoots, to keep them to the proper level. Nice bushy specimens are most useful for the decoration of the conservatory during the winter season. *Mesembryanthemum cordifolium variegatum*, a pretty procumbent, spreading plant, with creamy variegation, is now tolerably well known; but it is not grown according to its merits in small gardens. It is very easily propagated, and requires no attention except trimming the edges of the bands and lines occasionally.

Turning to the plants grown for their flowers, several of considerable value will be found. First we have a new double bedding *Lobelia* belonging to the *Pumila* race, and known as *Lobelia pumila grandiflora flore-pleno*. It has the compact habit peculiar to the varieties of *Pumila*, and the flowers form bright blue rosettes, and

are so freely produced as to present the appearance of dense cushions of bloom. It is certainly a very interesting novelty and a most valuable bedder. This was exhibited at a recent meeting of the Royal Horticultural Society, by Messrs. Dixon and Co., Amhurst Nurseries, Anton Street, Hackney, and it excited a considerable amount of interest, and had the distinction of a first-class certificate conferred upon it. As it can be procured for eighteenpence per plant, it will not be necessary to incur a very large outlay in raising a stock; two or three plants will be ample for the purpose. *Lobelia pumila White Pearl* is also desirable, as the flowers are pure white, and therefore useful for edgings. *Lobelia Brilliant* belongs to the *Speciosa* type, and is the best of the class, for it is much heartier in habit, and the flowers are several shades deeper in colour. This is decidedly the best of the blue lobelias, and the stock should be renewed annually from cuttings. A fitting companion to the preceding is *Lobelia White Perfection*, which makes charming beds and most effective edgings. These and *L. pumila grandiflora* may be regarded as the best of all the numerous varieties, and the only ones required in the small flower-garden.

The free-growing *Iresine Lindenii* still remains at the head of the list of leaf-plants with dark foliage, for it combines an effective appearance with a hardy constitution. It cannot be too highly recommended to those who have not yet grown it, as it is readily propagated, and may be wintered in an ordinary greenhouse or pit, provided it is kept rather dry at the roots. In *Coleus Verschaffeltii splendens* we have the most effective, perhaps, of all the *Coleus* for bedding. In hardiness and freedom of growth it is equal to the parent, and the colour is a rich-flamed crimson, instead of deep chocolate. *Coleus* are only adapted for bedding in warm localities, and cannot well be wintered in the greenhouse; but where they can be grown this should have the preference for its general good qualities.

Several verbenas have been introduced for bedding purposes; but the only varieties deserving the attention of the amateur are *Basilisk*, brilliant scarlet, fine habit and free, and *Pomerania*, a splendid hybrid, between the first-mentioned and the dwarf-growing *Melindres*; it is very dwarf, and the scarlet flowers are produced freely in neat trusses.

A very considerable number of bedding geraniums, of all classes, have been introduced within a very short time, and it would require a very long purse, and, as a leading grower puts it, "a field to grow them in," to keep pace with them. Some few are most valuable, and we have had three very fine pink-flowered varieties added to the list. These we are bound to regard as deserving of notice, for none of those already in general cultivation can be considered first-class. Of the three *Maia* is the best; it is dwarf, free, and the flowers are of a very rich shade of rose-pink, forming grand masses. *Bella* is also good; but the flowers are a few shades lighter. *Mrs. Upton* is also desirable. They are to be preferred in the order in which they are here set down; but, it is proper to add, the prices range in the same order from five shillings to sixpence per plant. *Triomphe de Stella*, a compact-growing nosegay, with brilliant orange-scarlet



flowers; *Marathon*, dwarf nosegay, with narrow-petalled flowers; and *Wellington*, deep crimson, are really first-class, and should be added to the most limited collection. One of the most distinct and beautiful bedding 'geraniums in the market is Hibberd's *West of Roses*, which produces a profusion of bright mauve-tinted pink flowers. Hibberd's *Lilac Banner* is a splendid lilac-coloured bedder.

## CHOICE APPLES FOR SMALL GARDENS.

BY JOHN SCOTT,

Merriott Nurseries, Crewkerne, Somerset.



IN planting apple trees in small gardens it is of vast importance to select those kinds only which produce heavy crops of fine, well-flavoured fruit, and which are, moreover, thoroughly reliable. Varieties which produce fine fruit, but are shy croppers, or those which only bear good crops every few years, are alike unsuitable for the small garden, although they may be of considerable service in places where there is sufficient space to grow a large number of varieties. There is an abundance of varieties which may be planted with the greatest degree of confidence, but owing to the large number in cultivation, it is by no means an easy task for those who have not paid considerable attention to the apple tree, to select the right ones. At the present day, I suppose we have over 3000 varieties of the apple cultivated in our gardens and orchards. My own collection numbers over 1200 sorts, not counting cider sorts, and is yearly increasing; not that I consider, by any means, so many kinds useful to any one individual. My aim in gathering together so many varieties of fruits is, to be able to distribute the best sorts only throughout the country, and to each locality as far as possible the kinds best adapted to it. It is no great task to get together a collection of apples, but it is something different to get them correct to name; no one but he who embarks in forming a large collection of apples can tell the difficulties that have to be encountered. When you take up the nursery catalogues and tick off all the sorts you find new to you in name, and then order them, what a *melange* of sorts one gets! I do not think there is in the kingdom a collection that is anything like correctly named. When I receive any sorts wrongly named, or that I think wrong, I send to all the best nurseries I know for the same sorts, and when I have got them—in some cases a dozen trees all under one name—I plant them side by side to see how many of them are alike, and when I find a fair proportion having the same character, then I conclude I may with some degree of safety select those that are alike as the true sort. By this means I have no fear of distributing varieties wrongly named: a matter of very great importance, for nothing is more annoying to the private cultivator

than to plant a tree of any particular kind, and after it has been growing in the garden several years to find it to be something else.

The planting of the right number of trees of the respective sorts is of considerable importance, for some of the sorts must be planted in larger proportion than others, so as to insure a liberal and continuous supply, extending over the longest possible period. In the accompanying list, which I need hardly say comprises those only which are of the highest excellence, I shall point out the relative proportions in which the respective kinds should be planted in gardens of limited dimensions. The sorts which can be the most highly recommended are as follows:—

*Adams*.—A handsome dessert apple of large size, coming into use during March and April. The fruit is rich and tender, and the tree a great bearer. One or two trees.

*Admirable Smalls*.—A large, handsome apple, in use during November; fruit firm, crisp, and pleasantly acid, adapted for the kitchen and dessert; tree dwarf and productive. One or two trees.

*Alfriston*.—A fine kitchen apple, of large size and excellent quality, in use from November to April. Several trees should be planted of this.

*Allen's Everlasting*.—A good dessert apple, in use during May and June. One tree will suffice.

*American Beauty*.—A richly coloured apple of large size; rich, tender, and pleasantly sub-acid; in use from December to April. One or two trees will be sufficient.

*Ananas, Gregoire*.—A handsome little dessert apple, in use from January to March; tender, with brisk flavour. Small in growth and productive.

*Annat, Scarlet*.—A pretty, little, early apple, ripe in September, dwarf and productive. One or two trees will suffice.

*Ashmead's Kernel*.—One of the best dessert apples, in use from November to May; the fruit is rather small, but it has the richness of the *Nonpareil*, and is more sugary; well adapted for unfavourable situations. Three or four trees should be planted.

*Astrachan, Red*.—A showy and useful dessert apple, in use during August and September; fruit of medium size and flavour, but the tree is of small stature and free bearing.

*Banks's Exhibition*.—A good cooking apple, in use from September to December; fruit large, and of fine flavour; one of the very best sauce apples. One tree will be sufficient.

*Beauty of Wilts, Dredge's*.—A medium-sized dessert fruit, of excellent quality, in use from December to February; flesh firm and rich in flavour. One or two trees.

*Beefing, Striped*.—A fine large cooking fruit, in use from October to May; productive and desirable. Three trees should be planted.

*Besspool, New*.—A good dessert apple, of medium size, and in use from January to March; higher in flavour than the old Besspool. One or two trees will suffice.

*Brown's Seedling*.—A useful autumn apple, of good appearance and flavour; productive and desirable. Two trees may be planted.

*Buckland's Devonshire*.—A large and handsome fruit, well adapted for dessert or culinary purposes; rich in flavour and productive. One or two trees will be enough.

*Calville Blanch d'Hiver*.—A large and handsome cooking apple, which may also be used for dessert; in use from January to April.

*Cellini*.—A large, highly-coloured fruit, of most excellent flavour; one of the very best for cooking and preserves, although useful for dessert; perhaps the most profitable apple in cultivation. From four to six trees should be planted.

*Cobham*.—A rather large and handsome apple, strongly partaking of the characteristics of the Blenheim Orange and Ribston Pippin; in use from November to January; fairly productive. One or two trees will be enough.

*Cockpit*.—A valuable cooking apple, of medium size, good appearance, and excellent flavour; may also be used for dessert; hardy and productive, generally bearing good crops when other sorts fail; very hardy. Plant three or four trees.

*Codlin, Carlisle*.—A useful, medium-sized kitchen apple, in use from August to December; tree dwarf, and a great bearer. One or two trees will be ample.

*Codlin, Keswick*.—A fine early-cooking apple, of medium size, and in use during August and September; very productive. About three trees should be planted.

*Codlin, Nelson*.—A fine large cooking apple, of the most excellent quality; tree hardy and productive. One or two trees will suffice.

*Court Pendu Plat*.—A fine dessert apple, of medium size, and possessing a rich and sugary flavour; tree dwarf and prolific, and generally depended upon. Two or three trees may be planted.

*Court of Wick*.—A dessert apple of small size, but useful, because of its excellent quality and the time it may be had in perfection—namely, from October to March. Three or four trees may be planted.

*French Crab*.—A desirable cooking apple, in use throughout the winter and far into the summer; hardy and productive. Two or three trees may be planted.

*Domine*.—A medium-sized dessert apple, possessing a rich, sprightly flavour; very productive; in use from December to April. One or two trees will be ample.

*Doree de Kew*.—A richly-flavoured and handsome dessert fruit, of medium size, in use from November to February; tree a heavy cropper. One tree will suffice.

*Doux d'Argent*.—A pretty dessert apple, of medium size, in use from October to March.

*Dredge's Fame*.—A useful apple either for cooking or dessert; the fruit is of medium size, and the tree a great bearer; in use from November to February.

*Ecklinville*.—A valuable cooking apple, superior to Lord Suffolk, and an enormous and early bearer. Three trees should be planted.

*Duke of Wellington*.—A valuable cooking apple, of large size and fine appearance, in use during the winter and spring; one of the very best for sauce. Three or four trees should be planted.

*Fairy Apple*.—A pretty little dessert apple, of good flavour; in use during February and March.

*Filbasket, Kentish*.—A good cooking apple, best adapted for orchards, because of the large size which the tree attains.

*Forman's Crew*.—A good dessert apple, of which one or two trees will suffice.

*Golden Drop, Coe's*.—A small dessert apple, of the most excellent quality, in use from November to May. One or two trees will be ample.

*Golden Noble*.—A large and handsome cooking apple, of fine quality, in use from October to March. Two or three trees should be planted, and the fruit thinned.

*Gravenstein*.—A fine apple, of medium size and fine quality, may be used for cooking or dessert; in use from October to January. Two or three trees may be planted.

*Hartford Sweet*.—A desirable cooking apple, of good quality; in use from December to June. One or two trees will suffice.

*Hawthornden*.—A fine culinary apple, in use during November. Two trees will be ample.

*Hunthouse*.—A medium-sized cooking apple, specially adapted for cold situations, where two or three trees should be planted.

*Incomparable, Barton's*.—A delicious little dessert apple, in use in February. One tree will suffice.

*King, Warner's*.—A fine kitchen apple, of large size and fine flavour; in use from November to March; tree a great bearer, and hardy.

*Lady Derby*.—A large and handsome apple, in use during August and September; may be used for dessert or cooking; a heavy cropper. Two trees will suffice.

*Lady's Sweet*.—A large and handsome dessert apple, of most excellent quality; flesh crisp and juicy, and of a rich, sprightly flavour; in use from April to May. Three or four trees should be planted.

*Leadington Grey*.—A medium-sized dessert apple, of good appearance, and possessing a rich flavour; valuable for northern localities.

*Lord Burghley*.—A medium-sized dessert apple, of the most excellent quality; the flesh is tender and very rich, and possesses a fine pine-apple flavour and aroma; in use during May and June. Four or five trees may be planted.

*Lord Suffield*.—A large-sized cooking apple, handsome in appearance, and of the finest quality; hardy and productive; in use during August and September. Plant two or three trees.

*Margaret Red*.—A pretty little dessert apple, in use during August. One tree will suffice.

*Margil*.—A useful dessert apple, of medium size and fine flavour; in use from November to February. Two trees will be ample.

*Neige*.—This is the Canadian snow apple, and may be used for dessert or cooking; very attractive and desirable; in use during October and November.

*Nonpareil*.—A dessert apple, rather below the medium size, but



of the most excellent flavour and quality; in use from January to May. Two or three trees may be planted.

*Nonpareil, Braddock's*.—A valuable dessert apple, of medium size and excellent quality, well adapted for exposed situations; in use from December to March. Two or three trees may be planted.

*Nonpareil, Early*.—A useful dessert fruit, of small size and fine quality; at its best from October to January. One or two trees will be ample.

*Nonpareil, Pitmaston*.—A first-rate dessert apple, of large size and handsome appearance; in use during December and February. Two trees will be enough to plant.

*Nonpareil White*.—The best of this class, and an excellent bearer. Three trees should be planted.

*Nonpareil, Ross*.—A first-rate dessert apple, of medium size; in use from November to April; adapted for any kind of soil.

*Peach, Irish*.—A very beautiful dessert apple, in use about the beginning of August; best when gathered and eaten from the tree. One tree will suffice.

*Pearmain, Adams's*.—A large-sized dessert apple, handsome in appearance and excellent in flavour; in use from December to February.

*Pearmain, Baxter's*.—A fine dessert apple, of large size and most excellent in flavour; very productive, even in adverse seasons; in use from November to March. Four or five trees may be planted.

*Pearmain, Claygate*.—A medium-sized fruit, of the finest quality, and possessing the flavour of the Ribston Pippin; in use from November to March. Plant two trees.

*Pearmain, Golden Winter*.—A beautiful dessert apple, of medium size, which may also be used for culinary purposes; very productive, and usually the fruit requires thinning; in use from October to January. Two or three trees should be grown.

*Pearmain, Mannington's*.—A valuable dessert apple, of medium size, and possessing the richest flavour; in use from November to March. Two or three trees should be planted.

*Pearmain, Summer*.—An old and highly-valued apple, which may be used for dessert or culinary purposes; in use during September and October. One or two trees will suffice.

*Pearmain, Winter*.—A useful apple, of medium size and rich in flavour; may be used for cooking or dessert; in use from December to May.

*Pippin, Blenheim*.—This is the *Blenheim Orange* of gardens; a valuable apple, large in size, and most handsome in appearance, and of excellent flavour; useful for dessert or cooking; in use during the winter. Several trees should be planted.

*Pippin, Breedon*.—A fine dessert apple, possessing a very rich flavour; in use from October to December.

*Pippin, Downton*.—A pretty little apple, especially adapted for small gardens; in use from November to February. One or two trees will suffice.

*Pippin, Fearn's*.—A handsome dessert apple, of medium size and July.

fine quality, brisk in flavour ; in use from November to March. One or two trees will suffice.

*Pippin, Galloway*.—A fine large-sized and handsome cooking apple, in use from November to May. Two or three trees may be planted.

*Pippin, Golden*.—An excellent dessert apple, of small size, in use from November to April.

*Pippin, Summer Golden*.—A small, delicious-flavoured apple, in use during August and September. Two trees will suffice.

*Pippin, Greenup's*.—A large-sized apple, which may be used for dessert or cooking, and especially adapted for cold climates. Three or four trees may be planted where other sorts do not thrive.

*Pippin, Kerry*.—A useful early apple, and of excellent flavour. One or two trees will be ample.

*Pippin, Ribston*.—A well-known and highly-appreciated dessert apple ; it possesses a very delicious flavour ; it must not be planted extensively until it has been proved to do well.

*Primate*.—A medium-sized early dessert apple, but little known ; very delicious, productive, and hardy. Two trees will suffice.

*Quarrenden, Devonshire*.—A valuable dessert apple, of medium size and good flavour ; in use during August and September. One or two trees will be ample.

*Reinette du Canada*.—A large apple, adapted for cooking and dessert ; succeeds well in exposed positions.

*Reinette, Golden*.—A richly-flavoured dessert apple, of medium size, productive ; in use from November to April.

*Russet, Powell's*.—A small-sized kitchen apple, which may be had in good condition from November to June. Two or three will be enough.

*Russet, Royal*.—A fine cooking apple, of large size, which may be kept until May in fine condition.

*Stirling Castle*.—An excellent culinary apple, in use in August ; very productive, and well adapted for northern latitudes. Two trees will be ample.

From the above I have made the following selections for the guidance of those who require a very small number of sorts. Those who require a dozen varieties only should plant those marked thus \*. It must be understood that those comprised in the two first selections must be planted in favourable localities, for most of them are superior, when they do well, to those comprised in the third selection.

SELECT DESSERT APPLES.—\**Astrachan, Red ; Cellini, \*Court Pendu Plat, \*Court of Wick, Early Harvest, Lady's Sweet, \*Lord Burghley, Red Margaret, \*Nonpareil, Irish Peach, \*Golden Winter Pearmain, \*Mannington's Pearmain, Fearn's Pippin, Devonshire Quarrenden, Coe's Golden Pippin, Ribston Pippin.*

SELECT KITCHEN APPLES.—*Alfriston, \*Striped Beefing, Blenheim Orange, Culville Blanch d'Hiver, \*Cellini, Cockpit, \*Keswick Codlin, Dredge's Fame, \*Duke of Wellington, Gravenstein, Lady Derby, Galloway Pippin, \*Royal Russet, \*Lord Suffield, Hawthornden, Reinette du Canada, Warner's King.*

SELECT APPLES FOR COLD CLIMATES.—Dessert : \**Ashmead's*

*Kernel, \*Court of Wick, \*Red Margaret, Early Nonpareil, \*Ross Nonpareil, Irish Peach, Baxter's Pearmain, Breedon Pippin, \*Ecklinville, Fearn's Pippin, Greenup's Pippin, Primate, \*Deconshire Quarrenden, Golden Reinette. Kitchen: \*Cockpit, \*Carlisle Codlin, Nelson Codlin, French Crab, Hartford Sweet, Hunthouse, \*Warner's King, Leadington Grey, \*Lord Suffield, Neige, \*Galloway Pippin, \*Reinette du Canada, Stirling Castle.*

## THE CULTURE OF THE WATER-CRESS WITHOUT WATER.

BY M. MAYER DE JOUHE.



CONTRARY to the prevailing belief, water-cresses do not live exclusively in water, which is their natural element; they may be grown under other dissimilar conditions, and this peculiarity may be turned to useful account at seasons when it is very difficult to procure this useful and valuable esculent in any other way.

Briefly, then, it should be known that water-cress will do very well in a garden-frame, sown in heat, in autumn or winter. Thinly sown and very lightly covered over, the seeds will germinate very rapidly, and if due care be taken to maintain a moderate degree of humidity, as in the case of other early produce, and a gentle and continuous heat, which can easily be effected by judicious ventilation and the frequent renewal of the dung, we may pick extremely tender, well-flavoured cress all through the winter, in gardens where there is no spring, or stream, or water-cress bed of any description, and at a season when, in the absence of special culture, the ordinary growth of the plant is nothing or next to nothing at all.

Adding a little fresh mould from time to time, and after each cutting, watering and giving rather less air than usual for a few days, we speedily get a new and valuable growth. If the seed comes up too thick we may thin and prick out the plants in boxes or shallow pans, keeping the glass down pretty close on the plants, as in the winter-culture of vegetables generally. Seedling plants thus treated, as a rule, give better results than plants or slips taken out of water.

I have not tried this plan in summer-time, but propose to do so in the course of the present year, as I have no other means of procuring water-cress at that season. I am disposed to think that by growing them in soil kept well wetted in garden-frames, with a northerly aspect, and with a sufficiency of ventilation, I shall get satisfactory results. Time will prove. Should success crown my efforts, I shall obtain cresses unattended by those disagreeable consequences, which are not uncommon with cress grown in water, and appears to be occasioned by the eggs of certain species of aquatic insects deposited on the under surfaces of the leaves and the stems of the plants.—*Revue Hort.*

July.

## GARDEN GUIDE FOR JULY.

KITCHEN GARDEN.—Where early crops are coming off, clear the ground and dig it over at once. Plant out Brussels sprouts, green collards, kale, savoys, cabbages, broccolis, etc. If the plants are crowded in the seed-bed, it is best to get them out at once. Have all ready, and in the evening put out as many rows as possible, and give a little water to every plant. This is better than waiting for rain, which may be so heavy as to render the ground unfit to be trodden on, and, if succeeded immediately by heat, the plants will flag as much as if put out in dry weather, whereas, being already in the ground, the smallest shower benefits them. Seed-beds for winter spinach should now be made up and well manured. Peas and kidney beans may be sown this month, for late supplies, and at this season it is as well to sow early as well as late sorts. Gather kidney beans close; every pod left to ripen checks the productive power of the plant. Take up onions, shallots, and garlic, as they ripen, and store for winter. Give asparagus-beds plenty of liquid manure, and use the grass mowings from the lawn as mulchings, to prevent the soil from cracking. Earth up celery for early use, but the rows that are not forward must be kept open and well watered, as the plant grows very slowly after being earthed up, the object of the earthing being to blanch it only. Sow saladings for succession.

FRUIT GARDEN.—Put netting over currants, gooseberries, and cherries, to keep the birds from the fruit. To retard or keep hanging currants and gooseberries, cover with mats. Raspberries to have their suckers reduced to four or five to every stool; those left will rise strong, and ripen their wood well; but a forest of spray will be all weak alike, and at the winter pruning there will be a temptation to leave all, because for strength there will be little choice. Never dig between raspberries; it causes them to throw their suckers a long way from the stools; but surface manuring at this time of the year, and no disturbance of the earth, causes strong suckers to rise near home. Strawberries to be potted as soon as rooted, as they make roots faster in pots than in the open ground; and should we have a chilly autumn, a few of the best of the plants can be kept under glass, to ripen their crowns. Lay a few more of the best runners in pots, cut away all weak runners, and supply water liberally to runners and old stools. As soon as rooted in pots, remove to a frame and place upon a bed of some moist material, where they will soon fill the pots with roots. Remove weak runners, and peg down in pots or on the border a few more of the best for making new beds.

FLOWER GARDEN.—Budding roses is the most important operation this month. After heavy rains is the best time, as the sap then rises freely. The stocks should be vigorous, and if the weather continue dry, and if the sap flows slowly, a drenching of liquid manure or plain water, for two or three nights in succession, will prepare them, without waiting for rain. Cuttings of all kinds may now be struck out of doors; antirrhinums, phloxes, pentstemons,



alyssums, dielytras, etc., and cuttings of laurels, aucubas, and other shrubs, must be struck in the shade; but geranium cuttings should be struck in the full sun. Where long ripe branches of geraniums can be spared, they are better than soft shoots; and, if pinched for time, strike a lot of such ripe branches in five-inch pots, half-a-dozen in a pot, put all round, and they need not be potted separately till spring, when started for bedding out. Dahlias require special attention now as they come into bloom; earwigs are very destructive, and must be trapped with bean-stalks, or a handful of hay may be stuffed into an empty flower-pot and put on a stake, and the vermin shaken out into salt and water every morning.

**GREENHOUSE.**—Show and fancy pelargoniums done blooming must be turned out and placed in a sheltered position. After a week's exposure, cut them in to the first or second eye at the bottom of each shoot, and place them in a cold pit, to make their new growth. They must now, for some time, be kept from growing rapidly, and have but little water. When they have broken well, they must be repotted into the smallest pots their roots can be got into, and all the old soil must be shaken off, and the roots moderately thinned. Shift all greenhouse plants required for late blooming, and grow them on to a good size before allowing them to blossom. Cinerarias for winter blooming must have good culture and shifts as required, and camellias may be shifted, if necessary; but, if well potted in the first instance, they will flourish in the same pots for two seasons in succession, and to overpot them is to do them injury, from which they may never recover.

**STOVE.**—As pines colour, they should be kept moderately dry. Plants shy of fruiting should be kept dry for awhile, to cause a check, and then be liberally soaked, and kept warm and moist, and the new growth will result in the production of fruit. But to check them before they are well matured may cause premature fruiting, and should not be done until the plants have had a long course of liberal culture. Young stock must be encouraged to grow strong, by allowing plenty of room in which to expand their leaves; give plenty of water, and repot as necessary. In vineries great attention must be paid to keeping the foliage healthy to the last, as on this depends the maturation of the buds that are to fruit next season. Keep up a moist atmosphere, and watch vigilantly against red spider. Plants heavily laden with fruit must have the assistance of strong manure water. Be careful not to cut away laterals too freely, as they are most useful in helping the maturation of the bunches.

## HORTICULTURAL AFFAIRS.



**ROYAL HORTICULTURAL SOCIETY.**—SUMMER EXHIBITION, June 4 and 5.—This exhibition, although weak in some respects, was, considered as a whole, most satisfactory and interesting. The Pelargoniums, Azaleas, and Heaths, which may be had in prime condition during the early part of June, were omitted from the schedule, and the tent was, consequently, not so bright as it might have been. The chief interest of the exhibition centred in the new plants, which were presented in much larger numbers

July.

than usual, and considerably above the average in point of merit. The display of fruit was very good, although not what one might expect at an exhibition of this character. This, however, was explained by the paucity of the prizes. Amongst the large number of novelties exhibited occurred a new double-flowered bedding *Lobelia*, from Messrs. S. Dixon and Co., Amherst Nursery, Anton Street, Hackney. This appears to be a double-flowering form of *Lobelia pumila grandiflora*, and will probably prove a very valuable bedding-plant. The flowers form neat little rosettes, and remain in perfection a long time, owing to their not being injured by rain so soon as those of its parent.

**ROYAL BOTANIC SOCIETY.**—The second summer exhibition of this Society, which was held on June 11 and 12, was considerably above the average of the last few years, although possessing no feature calling for special remarks. Orchids were better than usual, Cape Heaths were simply grand, and, owing to Mr. Nye, gardener to E. Foster, Esq., Clewer Manor, Bucks, again making his appearance in the great class for nine Show Pelargoniums, these flowers were admirably represented, and made a grander display than has been seen for some time. Stove and greenhouse plants were also remarkably fresh and good, and Pot Roses were presented in a much fresher condition than at any exhibition held in June since 1857; for, excepting in unusually cold seasons, pot-roses lack freshness when shown after the end of May.

**EXHIBITION OF THE ROYAL HORTICULTURAL SOCIETY AT BATH.**—The Provincial Exhibition of the Royal Horticultural Society at Bath, which was held on June 24, and four following days, has proved, we are happy to say, most successful. The prizes were on the most liberal scale, amounting, in the aggregate to the large sum of £1900, and allotted to embrace all classes of plants, fruits, flowers, and vegetables. The prizes for cottagers were also on the most liberal scale, and the tents devoted to their production were by no means the least interesting feature of the exhibition. Stove and greenhouse flowering, and ornamental-leaved plants, were exhibited in large numbers, and in splendid condition. The specimens in the great class for a collection of flowering and fine foliage plants in equal numbers were unusually fine. Cape Heaths were also in grand condition, for the cool weather experienced during the early part of June being highly favourable to the preservation of the early-flowering varieties in full perfection until long after the usual time. Palms and Ferns were also very plentiful, and novelties were exhibited by the principal metropolitan nurserymen in large numbers. On the opening day, the President, Council, and Officers of the Society were entertained by the Mayor of Bath at a grand banquet, which was attended by the *élite* of the neighbourhood. The Rose Show on the third day of the Exhibition was, as at Birmingham last year, a great source of attraction, and, being the first shilling day, the tent devoted to roses was crowded throughout the day.

**EXHIBITIONS OF RHODODENDRONS** are, it appears, rising in public estimation, for this year three exhibitions have been held in the metropolis, and one at Manchester. The exhibition in the Royal Botanic Garden, Regent's Park, was produced by the well-known firm of Messrs. H. Lane and Son, Great Berkhamstead, and the Messrs. John Waterer and Sons, of Bagshot, who, for many years past, have occupied the tent in the gardens of this Society, held their annual exhibition in the Alexandra Park. It is highly gratifying to be able to announce that the plants did not suffer in any way from the terrible fire which totally destroyed the Alexandra Palace in the early part of last month. The exhibition at South Kensington was produced by Mr. A. Waterer, of Knap Hill, as also was that at Manchester. It is simply necessary to say that at the several exhibitions all the best varieties were represented, and, to give the names, would occupy too much space. The undermentioned varieties, which are of recent introduction, are well deserving of mention for their general good qualities:—*Achievement*, rosy scarlet; *E. C. Baring*, glowing crimson; *Edward S. Rand*, crimson; *Lady Annette de Trafford*, pale rose; *Sigismund Bucker*, dark puce; *Mrs. John Clutton*, white; *Francis Dickson*, brilliant scarlet; *Stella*, rose; with chocolate blotch on top petals.

**MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.**—The Whitsun Exhibition of this Society was, in respect of the quality of the competitions and the public attendance, exceedingly good. The leading features were orchids, hardy ferns, and herbaceous and alpine plants. The collection of orchids was, probably, never equalled at any exhibition, and assuredly not surpassed, for there were no

less than 287 specimens of these valuable plants. Messrs. Rollisson's splendid group of herbaceous plants was one of the finest ever exhibited. Messrs. Cole, of Withington, made a conspicuous figure in the classes for stove and greenhouse plants. The attendance on the first four days amounted to upwards of 24,000.

THE GREAT TRIAL OF POTATOES AT THE CHISWICK GARDEN ought to possess considerable interest for all classes of horticulturists, for it consists of 350 named kinds, gathered from all parts of our own country, and many from France, Holland, and other countries. In the majority of sorts, a row of 25 tubers of each are planted, the rows being from  $2\frac{1}{2}$  to 3 feet apart, so that plenty of space is afforded.

ROYAL BOTANIC GARDENS, KEW. — These beautiful gardens continue to enjoy the favour of the million, if we may judge by the report of Dr. Hooker a short time since. During the year 1872, the gardens were visited by 553,249 persons, an increase of a little more than 6000 over the numbers in 1871. On Whit-Monday, upwards of 59,000 persons visited the gardens.

MISS PRATT'S FLOWERING PLANTS. — Messrs. F. Warne and Co. have lately published a new edition of Miss Pratt's "Flowering Plants, Grasses, Sedges, and Ferns of Great Britain," in 6 vols., price £3 15s. Messrs. Warne have wisely provided new, or improved the old plates, which number in all upwards of 300.

VEGETATION AND MOONLIGHT. — M. Charbonnier, of Paris, states that he has observed in his aquaria a very remarkable growth of cryptogamous vegetation under the influence of the light of the full moon. Gardeners, says the *Athenæum*, have long affirmed that the moon's rays give great activity to the growth of mushrooms. It will be interesting to prove by careful experiments, if this be a fact or a fancy.

## TO CORRESPONDENTS.

HOW TO DESTROY COCKROACHES, CRICKETS, AND WOODLICE. — *Clare Hall.* — I have seen in the *FLORAL WORLD*, many times, inquiries how to destroy woodlice, etc. I have determined to describe the way in which I have cleared my house of these and other pests. About three and a half years ago I entered this house as soon as finished, and in a very short time cockroaches made their appearance, followed shortly after by crickets; the latter I detest more than the former. I then obtained a few pots (white and glazed) such as are used for potted meats, fish, and shrimp paste. They were half filled with water and treacle. This destroyed the cockroaches, but not the crickets, for they swam about the surface like water spiders. I then applied treacle alone; this succeeded in clogging their feet; when the surface was covered, the pots were emptied. Woodlice have been destroyed in the same way. These I have had to empty in the morning, and to be sure of killing them have poured boiling water over them. I buy two pounds of treacle, for which I pay fivepence. Perhaps many may not know what treacle is, as in some parts it is called Molasses, and in others Golden Syrup. I make no apology for troubling you, as I know that you are wishful of doing good.

PHLOXES, ETC — Mr. Massie sent the flowers in a card-box, which with an east wind and a hot sun to accompany them on the journey, is as bad as consigning them to the fire at once. To attempt to name them would be sheer waste of time. We are constantly advising our friends to enclose fresh flowers between ivy leaves, and to avoid the use of chip boxes and cotton wool, but very many refuse to be advised.

JASMINE. — *C. H.* — You must not cut the shoots of the pot jasmine that you trained to the roof. Train all the growths you can get, and be thankful that a potted plant keeps its health so well. Put the cyclamens in a bed of coal-ashes in a pit, and keep them watered for the present but sparingly.

APHIDES IN GREENHOUSE. — *Edward Dowell, Dunton Vicarage.* — We have had no opportunity of testing the experiment, but we know that tobacco smoke will effectually destroy aphides. Tobacco powder, which may be obtained of any seed-man, will also kill them. When applying the latter, damp the foliage, and then dust the powder over it, and after it has been on twenty-four hours give the plants a good syringing to wash it off, for if left too long upon the leaves they will be injured.

July.

**BROCCOLI.**—*Commetina.*—The plants, after they are put out, frequently suffer from the attacks of the larvæ of "Daddy Long Legs," commonly known as the "Bott;" but we believe your plants have "damped off," as they frequently will do when raised in pans and boxes. Seedling plants of cabbages, broccolis, stocks, and other things of a similar character, when raised in pans or boxes, should be watered by dipping in sufficient water to reach about two-thirds of the depth of the pan or box, which must be removed before the surface soil becomes moist. By keeping the surface soil dry, there will not be much danger of the young plants damping-off.

*J. K., Bristol.*—The answer to your letter was unavoidably omitted, and it is now too late to be of service to you.

**INTERMEDIATE STOCKS.**—*F. H.*—There is no real difficulty in having a good display of these flowers during the spring months, as the following remarks will show. There are several varieties, and the best are the *Purple*, *Scarlet* (so called), *White*, and *Mauve Beauty*. The latter is comparatively new, and the flowers, which are produced in huge pyramidal spikes, are of a very pleasing shade of lilac. Procure seed from good strains, for even when the seed is saved with the greatest care, a proportion will come single; but when the seed is inferior the majority will produce single flowers, and as there is no way of separating them from those which will produce double flowers, until they come into bloom, they represent so much wasted space and labour. Sow the seed in pans filled with a mixture of leaf-mould and sandy loam, cover it lightly, and then place the seed pans in a cold frame. When the plants are an inch or so in height, prick them off, and use sixty size pots, putting three in each. When well established, shift the largest size, and then put them in a cold frame, and fully expose to the weather, excepting during heavy rains, until the frosts render protection necessary. During the winter the frame must be well ventilated, but sufficient protection must be afforded to keep the plants safe from frost. Early in February place those shifted into the flowering pots in the autumn in the greenhouse or intermediate house, to induce them to flower early, and at the same time shift the others into pots one size larger. Moderately weak liquid manure may be used after the plants are well established and in full growth during the spring; but good spikes of bloom may be produced without its aid. Single plants in three-inch pots will be very useful for decorative purposes, and to save trouble they may be put in them when removed from the seed-pan.

## CATALOGUES RECEIVED.

**B. S. WILLIAMS, VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, N.**—*Catalogue of New Plants.*

**E. G. HENDERSON AND SON, WELLINGTON ROAD, ST. JOHN'S WOOD.**—*Catalogue of Stove and Conservatory Plants, Orchids, Soft-wooded and Bedding Plants.*

**CHARLES TURNER, THE ROYAL NURSERIES, SLOUGH.**—*Catalogue of Auriculas, Pelargoniums, and Soft-wooded Plants generally.*

**WILLIAM BULL, KING'S ROAD, CHELSEA, S.W.**—*Annual Catalogue of New and Rare Plants.*

**J. PAYNE, BELVEDERE, KENT.**—*Catalogue of Cuttings and Plants of Geraniums, etc.*

**CHARLES TURNER, ROYAL NURSERIES, SLOUGH.**—*General Spring Catalogue.*

**KIRK ALLEN, BRAMPTON, HUNTINGDON.**—*Spring Catalogue of Bedding and other Plants.*

**S. DIXON & CO., AMHURST NURSERIES, ANTON STREET, AMHURST ROAD, HACKNEY, E., AND 48A, MOORGATE STREET, LONDON.**—*Descriptive Catalogue of Chrysanthemums, Fuchsias, Geraniums, etc.*

**GEORGE RAWLINGS, OLD CHURCH, ROMFORD, ESSEX.**—*Descriptive Catalogue of Dahlias.*

**T. BUNYARD & SONS, MAIDSTONE AND ASHFORD, KENT.**—*Select List of Bedding-out Plants, Greenhouse Plants, etc.*







## ADA AURANTIACA.

*(With Coloured Illustration.)*

BY GEORGE GORDON.



THE beautiful *Ada aurantiaca*, of which an illustration is here given, belongs to the section of orchids thriving in a cold temperature, and it is therefore a fitting companion to the *Odontoglossum* and the newly-introduced and extremely beautiful *Masdevallias*, to which Mr. Gedney, who has charge of Mr. Day's magnificent collection of orchids, alluded in the last number of the *FLORAL WORLD*. It is at present the only member of the genus in cultivation; and although known to cultivators for a considerable period, good specimens have been scarce. This, however, has been in a large measure due to its comparative rarity, for it is by no means difficult to cultivate when once its peculiarities are properly understood. Of late it has been imported more extensively, and at the present moment it is so plentiful in trade collections, that well-established plants can be purchased at prices ranging from fifteen to thirty shillings each, so that it is within the reach of all who can afford to grow orchids. It is a very neat-growing orchid, with evergreen leaves, and attains a height ranging from eight to twelve inches. The flowers, as will be seen by the illustration, are of a brilliant orange scarlet, and most attractive in appearance. Under good management the flowers are produced freely in autumn and early spring, and remain in perfection a long time, provided they are kept dry.

As this species thrives under much the same system of management as that sketched out for the *Masdevallias* by Mr. Gedney, it is not necessary to say much in reference to the cultural details. Although found in New Granada at an elevation of 8500 feet, it appears to grow more freely and bloom most profusely in the temperature of an intermediate house; but it will thrive exceedingly well with the cool orchids, provided it is placed at the warm end of the structure during the winter season. Like the majority of other orchids of a similar habit, it thrives most satisfactorily in fibrous peat, broken up roughly, or sphagnum moss, either separately, or the two incorporated together in equal parts. The drainage must be perfect, and as a rule it will be found preferable to fill the pots to about one-third of their depth with clean crocks of a moderate size. Liberal supplies of water will be required during the growing season; but through the winter, when the plants will be at rest, it must be applied more sparingly, and the material about the roots maintained in a moderately moist condition only.

In repotting them, carefully loosen the roots round the outside of the ball, to enable them to strike more readily into the new soil, and at the same time remove as much of the old stuff as possible. The base of the pseudo-bulbs should be rather higher than the rim of the pot.

## FANCY PANSIES.

BY J. JAMES,

Head Gardener, Redlees, Isleworth, W.



FANCY pansies differ from the show varieties in having flowers remarkable for their rich and fantastic colours, and also in their more robust habit. In the flowers of the old fancy varieties the colours are most curiously intermixed, and present a most striking contrast to the show flowers, with their regular and well-defined markings. A great improvement has, however, of late, been effected in the flowers, for those of the more recent introductions are of good shape, and the colours nearly as well defined as in the show flowers; but with this difference—the dark colours are in the centre of the petal, instead of being round the outside, as in the case of the yellow and white-ground flowers. Some of the colours of the new fancy flowers are wonderfully rich, especially those with dark maroon blotch and bright crimson belt. They are certainly worth the attention of the amateur, who has a greater regard for startling colours than for “properties.” But, as a grower of the show varieties for many years, I cannot say that as yet I have much affection for them. Notwithstanding, I am perfectly willing to help those who are partial to them to grow them to the highest degree of perfection.

The month of August is most favourable for commencing, as the plants can now be purchased in good condition for planting out, and there will be ample time for them to become well established before the winter; and established plants will now furnish a plentiful supply of cuttings. In propagating pansies at this or any other season of the year, select the young and vigorous shoots which push up from the base, as the flowering shoots are quite worthless for propagating purposes. Take the cuttings just below the second or third joint, according to the distance they may happen to be apart, and then remove the lowest pair of leaves. Insert them in pots provided with an efficient drainage, and filled with a light sandy mixture. Water them well in, and place in a frame in a shady position. The only attention they will require until they are struck will be to sprinkle them overhead once a day, and remove all that perish as soon as signs of decay are perceptible. During the first ten days or a fortnight, admit air by tilting the lights during the night, and afterwards it may be admitted during the day also. Sufficient water will be required to keep them fresh, and no more, and the quantity necessary to effect this will, of course, depend entirely upon the weather. When nicely rooted, remove the lights altogether, to prevent their being drawn up.

As it is important to plant them in their permanent quarters before they are too firmly established in the cutting bed, the preparation of a bed in an open position should be commenced at once. Speaking generally, it may be said that they thrive most satisfactorily in a rather light and deep loamy soil, although they will do



very well in any good garden soil. Clay soils are the least suitable, because of the risk of their perishing during the winter. Moreover, the roots are unable to penetrate far below the surface, and they are consequently more readily affected by dry weather during the summer season. As regards the preparation of the soil, I would suggest that a liberal dressing of leaf-mould or well-decayed manure be applied, and the bed then turned up to a depth of about eighteen inches. If the soil is of a heavy character, the addition of a liberal quantity of gritty matter, such as road scrapings or river sand, will be highly advantageous. Plant them out at a distance of about twelve inches apart, and water them when necessary during dry weather until they are properly established. Two or three small pieces of stake may be put round each plant to keep it steady, in case of rough winds. Beyond this, no further attention will be required.

In heavy soils it may be necessary to afford them the shelter of a cold frame during the winter, and in this case it will be desirable to grow them in small pots, and then plant out in February, instead of planting them in three-inch pots; and use a mixture of turfy loam and leaf-mould. The frame will require ventilating during the winter, and in dry, mild weather the lights may be removed altogether. Sometimes pansies, when in pots, are attacked with mildew; but this may be kept in check by dusting the foliage with sulphur as soon as it makes its appearance. In case growing them in pots would entail more trouble than could well be afforded, it is a good plan to plant them on a bed raised about twelve or fifteen inches above the general level, and then put on each side a brick raised on edge, to break the force of the wind; or, what is better still, they may be protected with one of the portable ground vineries now manufactured.

The undermentioned will form a very good collection to commence with, as it comprises varieties representative of all the shades of colours found in this section:—*Agnes Lainy, Alexander Crombie, Alexander Forbes, Buttercup, David Syme, Lady Ross, Lady Coutts Lindsay, Miss Hope Johnstone, Pandora, William Baird, Amy, Duncan Clark, Miss Minnie Mather, Miss C. Arbuthnot, Mrs. T. Scott, Mrs. Laird, Major Mackay, Medora, Orange Boven, Mrs. Shirley Hibberd, Striped Queen, William Hay, Wonderful.*

## PRESERVING AND MOUNTING FERNS.



HAVING been requested by a correspondent to offer some advice on drying and mounting ferns, we shall proceed to deal with the subject rather fully, for the assistance of other readers also, who may be in need of similar information.

Drying and mounting fern fronds is most easy of accomplishment by any one with an ordinary degree of intelligence, yet a certain amount of care is essential to preserve the fronds in good

condition and colour. First of all, a sufficient quantity of paper, rather larger than the fronds to be dried, must be procured; for fronds rather hard in texture, newspapers printed on paper equal in quality to that of the *Times*, *Field*, or *Illustrated London News*, will answer admirably, consequently, a large number of the smaller species may be dried in books which possess no particular value. Of course it will not be desirable to put them between the leaves of valuable books, as they will stain the leaves more or less. The more soft and fragile kinds will require a greater degree of care and a more absorbent paper. The best paper is unquestionably the "botanical paper" manufactured and sold by Mr. Edward Newman, of Bishopsgate Street Without, London, which is also most valuable for drying botanical specimens of all kinds. To admit of the fronds being more evenly pressed than would otherwise be possible, provide two stout pieces of board, which of necessity must be quite flat.

Fully developed and perfect fronds must be selected, and gathered when quite dry. Commence by laying a few sheets of paper upon the board. Upon these spread out one of the fronds; cover this with a few more sheets of paper; lay out another frond; and repeat this until the stock of fronds is exhausted, or till the pile has reached a height of eighteen inches or two feet. The board can then be placed upon the top, and a weight put upon it to press the fronds. The weight may be a pile of books, or a box filled with sand, if no other weights are available for the purpose. In three or four days change the paper, using dry paper of the same kind as before. Some kinds might be changed a second time with advantage, but, as a rule, the fronds may be dried most satisfactorily when changed once.

In mounting the specimens, procure a scrap-book, or a sufficient supply of sheets of moderately stout white paper, of a uniform size; a supply of gum, which may be made by dissolving an ounce of gum arabic in a little hot water; and a number of slips of rather thin and tough white paper, these should vary from three-quarters of an inch long and a quarter of an inch wide, to two inches long by half an inch wide. Gumming the fronds to the paper is most objectionable, and it is much better to fix them to the paper with the bands mentioned above. To do this neatly, lay the frond out nicely on the paper and commence strapping it down. The bands should be gummed on one side only, and from four to eight, according to the size of the frond, will be required to hold it securely in its place. When the fronds are small, several may be attached to each sheet. A small portion of the fronds should be turned up, to admit of an examination of the fructification, in case it should be desired at any time.

The names should be written under each frond, and in the case of native species a note describing where each was found will also add to the interest of the dried specimens.

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## POT ROSES.

BY AN AMATEUR ROSARIAN.



ROSES are not grown in pots so generally as they should be in private gardens, and this is, in the main, owing to amateurs being afraid to take them in hand, through the existence of the belief that when they are in pots they are most difficult to manage. To produce splendid specimens like those exhibited in the Metropolis during the spring season by Mr. Charles Turner and Messrs. Paul and Son, a vast amount of skill and labour are essential; but the cultivation of nice little plants adapted for the decoration of the conservatory, is quite another matter, and may be accomplished as easily as the cultivation of the commonest plant suitable for the conservatory. They can, moreover, be had in bloom before it is possible to have roses out of doors, without the aid of any artificial heat whatever; or, at all events, with no more heat than is required to keep the frost out of the greenhouse, and insuring the safety of the other occupants. It is important that there should be no misconception upon this point, for usually pot roses and forcing pits are associated together in a manner to lead the uninitiated to suppose them to be quite inseparable.

The amateur commencing with pot roses should buy, in the months of July or August, as many plants as his circumstances and conveniences will justify. If they can be afforded, strong, established plants, in five-inch pots, costing about thirty shillings per dozen, should have the preference; but strong plants in three-inch pots, worth from twelve to eighteen shillings per dozen, will do exceedingly well to make a beginning with.

The pots must be well filled with roots, for spring-struck plants recently potted will not be of much service for decorative purposes next spring. When they are received, prepare a compost of two parts turfy loam and one part decayed manure, and shift them into pots two sizes larger, using the prepared compost and well-drained pots. After they are repotted, stand them on a bed of coal-ashes in an open position, and attend to them regularly until they are nicely established in the new soil. Water sparingly and sprinkle them overhead once a day at least, the evening being, as a rule, the best time for doing so. Some time in December remove them to the greenhouse or frame, and prune them to within two or three buds of the base of the young wood. The soil must be kept just moist only until the plants begin to break freely in the spring, and then the supply of water can be increased. In other respects they will require the same attention as the other occupants of the house, and after they have done flowering shift them into larger pots and remove them to the open air.

The most essential point is to select suitable varieties; and as I have paid, for many years past, a considerable attention to the pot-culture of roses, can strongly recommend the undermentioned as being the very best in the several classes and colours.

August.

*Hybrid Perpetuals*.—Annie Laxton, Abel Grand, Alfred Colomb, Anna Alexieff, Anna de Diesbach, Antoine Ducher, Baroness Louise Uxkull, Beauty of Waltham, Bessie Johnson, Centifolia rosea, Charles Lefebvre, Charles Rouillard, Coquette de Blanches, Dr. Andry, Duchess of Sutherland, Duke of Edinburgh, Etienne Levet, Francoise Fontaine, General Jacqueminot, Gloire de Ducher, Horace Vernet, Julie Touvais, Leopold Hausberg, Madame Alice Dureau, Madame Caillat, Madame Clemence Joigneaux, Madame Clert, Madame Fillion, Madame Lacharme, Madame Victor Verdier, Madlle. Thérèse Levet, Marguerite de St. Arnaud, Marquise de Castellane, Monsieur Boncenne, Monsieur Paul Neron, Monsieur Noman, Paul Verdier, Perle Blanche, Prince Camille de Rohan, Princess Christian, Princess Mary of Cambridge, Reine du Midi, Sénateur Vaisse, Victor Verdier.

*Tea-scented*.—Alba Rosea, Belle Lyonnaise, Gloire de Dijon, Madame Celine Berthod, Madame Damaizin, Madame de St. Joseph, Madame Falcot, Madame Jules Margottin, Madame Hippolyte Jamain, Madame Villermoz, Marie Ducher, Marie Sisley, Monsieur Furtado, Perle de Lyon, President, Rubens, Souvenir d'un Ami, Souvenir d'Elise Vardon, Vicomtesse des Cazes.

*Bourbons*.—Baronne Gonella, Coupe de Hebe, Madlle. Favart, Model of Perfection, Rev. H. Dombrain, Sir Joseph Paxton, Souvenir de la Malmaison.

*Hybrid China*.—Charles Lawson, Juno, Miss Ingram, Paul Ricaut.

*Noisettes*.—Celine Forestier, Jaune Desprez, Lamarque, Marechal Niel, Solfaterre, Triomphe de Rennes.

It may not in every case be desirable to purchase all the varieties mentioned above; but as all are so thoroughly good it is of no real consequence which are selected. It is preferable to grow a large number of varieties rather than a few, and several plants of each.

## WINTER SALADING.

BY GEORGE GRAY,

Head Gardener, Ewell Castle.



FOR the information of those readers who desire a well-filled salad bowl at all seasons of the year, it is my intention to offer a few remarks upon the production of winter salading, which, if acted upon, cannot prove otherwise than useful. More trouble is, of course, incurred in the production of salading for winter use than for any other season of the year; but after upwards of twenty years' experience, I have found that it is not such a very difficult task to keep the salad bowl well filled, provided proper attention is paid to the matter, and the work done at the proper moment.

In discussing a matter of this kind it is necessary to consider first of all which are the best things to grow, and then the best



means of sheltering them at certain periods ; and at the commencement it may be said that without the assistance of frames of some kind or other it will be difficult, if not impossible, to carry the supply far into the winter. Protection from damp is one of the main essentials, and of more importance than protection from frost, as such things as lettuce and endive are capable of resisting the effects of severe frost, provided they are quite dry. Very frequently the most rough-and-ready contrivance will suffice, but speaking generally, a good frame—whether fixed or portable is of little consequence—is in every way desirable.

To render the remarks more intelligible, the several subjects will be considered under distinct heads, and we will commence with—

**LETTUCE.**—For securing a supply from the middle of October until Christmas, select strong plants from a sowing made about a fortnight since, and plant in beds about nine inches apart each way ; if no sowing was made, sow at once where the plants are to remain, and thin to the proper distance apart. By sowing in the beds a considerable saving of time will be effected, which just now is of considerable importance ; and a second sowing must be made about the middle of August for maintaining the supply from the early part of December until March ; and for use from the early part of the last-mentioned month until the spring-sown crops are ready for use, sow in September. For the first sowing select the *Paris Green Cos* and *Berlin White Summer Cabbage*, and for the second and third sowings *Brown Bath Cos* and *Hammersmith Hardy Green Cabbage* will be found the most desirable. As the plants from the first sowing will be full grown by the beginning of October, they must be protected from damp and frost, and a considerable number, especially those to be used first, might be lifted and replanted in an unoccupied fruit-house or vinery ; the remaining portion should be removed to a frame. It is desirable to lift them with as much soil adhering to the roots as possible, to avoid damaging the leaves, and to replant them just far enough apart to prevent their touching. When taken to the fruit-houses or frames, it will suffice to stand them upon the surface, and fill the space between the balls of soil with rather moist and fine soil. The plants raised in the middle of August will of course be much smaller, and may be planted in the frame in the usual way, but without disturbing the soil about the roots more than can be helped. The plants from the last sowing can be put rather close together in frames, or at the foot of south walls, or in sheltered corners. It is always advisable to put out a portion of the latter on a warm border, because if they survive the winter they will be found of immense value in the spring to supplement those wintered in the frames.

**ENDIVE.**—The two best for winter use are the *Green Curled* and *Broad-leaved Batavian*. Sowings should be made at the same time as advised for the lettuce. The cultural details generally are very similar, and it is therefore unnecessary to enter into details. There are, however, a few points to which it is desirable to allude. Endive is much hardier in constitution than lettuce, and large hearts, beautifully white and crisp, may be had, when to have lettuce

in the same condition is quite impossible. To blanch the plants from the first and second sowing more readily than would otherwise be practicable, plant them in trenches about four or five inches in depth, and when they have made considerable progress, fill up the trenches by carefully drawing the soil up to the plants. The strong-growing Batavian, which makes a most excellent substitute for lettuce during the winter, may also be earthed up slightly in a similar manner to celery about ten days or a fortnight after the trenches are filled in. The soil will afford material protection from the frost whilst keeping the leaves together, and assisting to blanch the hearts. In tying up endive in the autumn it is most essential to take advantage of dry weather. In putting it into frames, the plants can be packed much closer together than would be desirable for lettuce, provided it is done when they are comparatively dry.

The portable frames, of which there are a considerable number before the public, are most valuable in protecting salading during the winter. When there is a supply of these, both lettuce and endive should be planted in beds of the proper width to receive the frames, so that protection can be afforded at the proper moment without the necessity of lifting the plants; indeed, it will be simply necessary to level the sides of the bed and then fix the frame. In planting them with a view to their being covered without removal, the two outside rows should be about six inches inside of the line of the sides of the frame. During dry weather air should be admitted freely, but care must be taken not to expose the plants to rain or heavy dews, for when they once become wet there is no telling what mischief may be done.

CHICORY AND DANDELIONS.—The blanched leaves of both the chicory and dandelion are most useful during the winter; the seed of these must, however, be sown in the spring. The latter, when cultivated, will produce a very large supply of tender, delicately-flavoured leaves throughout the winter, by providing three sets of roots. The cultivation of both is the same: the seed requires to be sown in March or April, in drills fifteen inches apart, and the plants to be thinned to a distance of nine inches apart in the rows. In November the roots can be taken up and laid in by their heels, where they can remain until required for use. The roots do not exactly require forcing, as they will commence to grow freely in an ordinary cellar; and where there is no mushroom-house, it will be a most excellent plan to pack the roots close together in boxes about twelve inches deep, with a little fine and moist soil between them, and then place them in a cellar. In the mushroom house they can be packed up together in one corner. To keep up a supply throughout the winter, three lots of roots will be required; the first lot to be started when lifted in the autumn, the second as soon as the first lot begins to decline, and the third as soon as the second commences to show signs of exhaustion. Dandelion roots may be obtained from pasture and other land, but they will be small and by no means so profitable as those properly cultivated. Moreover, there is an improved form known as the *Thick-leaved*, which is much better than the ordinary wild form.

SMALL SALADING, such as mustard and cress, can only be raised in the depth of the winter with the assistance of more warmth than that afforded by the greenhouse. With such assistance it is so easily raised that it is not necessary to enter into details. After February it may be raised in cool structures. The American cress sown on a warm sheltered border, about the middle of the month, and after the second week in October protected with one of the portable frames alluded to, will be most useful far into the winter.

### QUICK METHOD OF PREPARING SKELETON LEAVES.



**P**RODUCE *perfect* leaves. Let there be no flaw or sign of decay. Then get six ounces of washing-soda, and pour it into two quarts of boiling water. Slack three ounces of quick-lime, and then pour this also into the boiling water. Let all boil together for fifteen minutes. Then remove it from the fire. Let it settle, and pour off the clear fluid. Pour this into a second clean vessel, and set it on the fire again. When it boils, put in the leaves; let them boil for one hour; then take up one and throw it into a basin of cold water—rain water is best. If the epidermis comes off freely by rubbing the leaf between the finger and thumb, *under the water*, then all the leaves may be removed from the solution. When they have all been carefully freed from the epidermis, put them in a mixture of chloride of lime and water; about a wineglass of chloride to a quart of water. Some leaves will take only ten minutes to bleach, others an hour, or more. Let them be watched, therefore, for they may burn into shreds if steeped too long. When pure white, throw them (carefully) into a basin of cold water, and from that float them out on slips of paper. When almost dry, put them in a book, to become *quite* dry and stiff. Then they are complete. The best for a beginner to try on at this season is the smooth holly, or the golden-edged holly, or large-leaved ivy, or common poplar, if they can be had *perfect*, especially the aspen variety. KATE SEYMOUR.

PROTECTION OF THE POLLEN OF PLANTS. — Dr. A. Kerner reprints from the "Proceedings of the Scientific Society of Innsbrück," an interesting Paper "On the means of the Protection of the Pollen of Plants against premature Displacement or Damp." As the vitality of pollen is immediately destroyed by exposure to the action of either rain or dew, he finds in nature a variety of contrivances to protect it against these injurious influences during the interval between its escape from the anther and its being carried away by insects, these contrivances being generally absent in those plants where fertilization is affected by the pollen being conveyed at once to the stigma by the wind. In plants with coherent pollen, fertilized by English agency, where some of the anthers are so placed as to be necessarily exposed to the weather, these are generally found to be barren, or destitute of pollen, and where they would interfere with the entrance of insects into the flower, they are altogether abortive or rudimentary. Plants with coherent pollen, which require insect agency for their fertilization, Dr. Kerner believes to be of more recent geological occurrence than those with powdery pollen, which require only the wind to convey it to the stigma.

August.

## LEAF-EMBROIDERED FLOWER-BEDS.

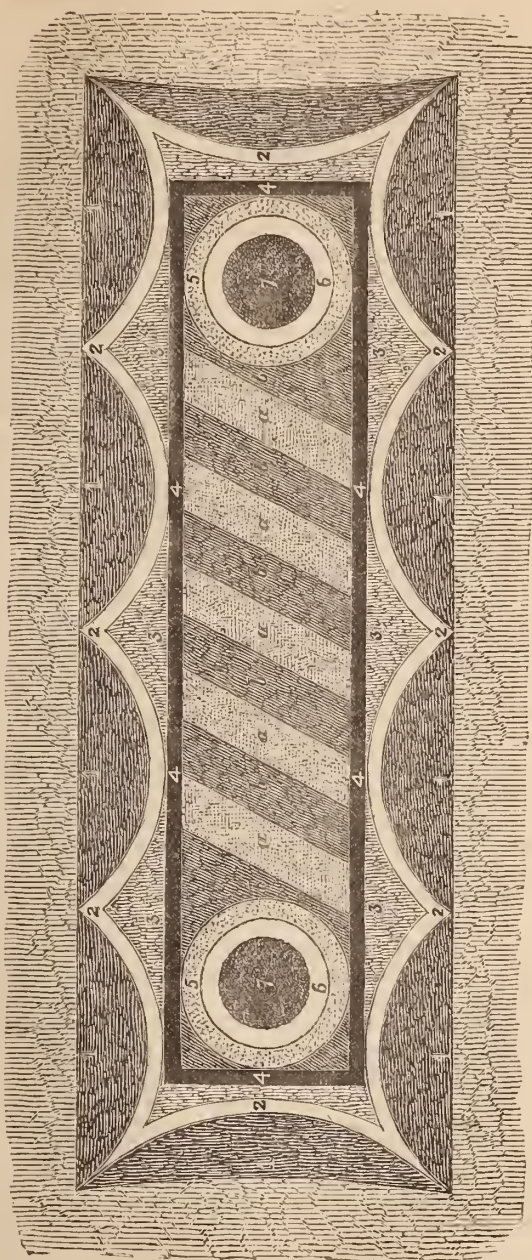
BY THOMAS TRUSSLER, EDMONTON.



NUMEROUS examples of leaf-embroidered flower-beds to be met with in the public parks and private flower-gardens in the neighbourhood of the metropolis, afford the best possible evidence of the high estimation in which this style of bedding is now held. Since it was first introduced it has undergone considerable modification, and it is now much improved, for the value of the several leaf-plants is better understood; moreover, there is a greater wealth of material at the command of the planter, and the results altogether are more tasteful and satisfactory. Much might, of course, be urged against this style of planting, for it has its disadvantages as well as its advantages; but when we consider that beds filled with leaf-plants present a most beautiful appearance, and from the day they are planted until far into the autumn, it will at once be seen that the general employment of plants with ornamental leaves can be strongly recommended. To plant the beds in a manner that will produce a rich and artistic effect, some knowledge of the true colours of the leaves and the habit of the plants are necessary, and those who are not acquainted with them will do well to pay a visit to one or more of the public parks in London sometime during the next two months. The best examples are as usual presented in Hyde Park and Victoria Park, both of which are most convenient of access. Although a visit to the parks is recommended, a good idea of the character of the plants and the colour of the leaves may be obtained by a careful perusal of these remarks, and by strictly following the directions which will be given for the propagation and management of the various subjects there will not be much difficulty in carrying out a moderately elaborate scheme. Attention is directed to the matter now, because the work of propagating a stock must be commenced this month, and although a large number of plants may be propagated in the spring, it is desirable to provide sufficient stocks of the majority now unless there is a well-appointed propagating-house in the garden. In the latter case it will suffice if about one-third of the number required is propagated in the autumn.

No attempt will be made to write an elaborate essay on the arrangement of leaf-tints, as it is considered that details of the proper management of the plants required will prove more useful, although, perhaps, less interesting. Moreover, the illustration of an example I had the pleasure of seeing a short time since in the gardens of an enthusiastic amateur in the neighbourhood of London, will afford a good idea of the style of planting best adapted for producing a good effect. The bed here figured is about sixteen feet in length, and six feet in width, and is situate in a conspicuous position upon the lawn. It is one of the best examples to be seen this season, and is so eminently suggestive that it will well repay careful examination. The planting is as follows:—





No. 1. *Alternanthera magnifica*, faced with a line next the grass of *Echeveria secunda glauca*. 2. Crescents of the Golden Thyme. 3. *Alternanthera paronychoides*. 4. *Lobelia pumila grandiflora*. 5. Circle of Golden Feather. 6. Circle of *Cineraria maritima*. 7. Block of *Coleus Verschaffelti*. *a*. Band of Golden Feather; *b*. band of *Iresine*. There was also in the same garden a bed with the same design, but coloured in a different manner, and it was difficult to say which was really the most effective, both were so good. No. 1. *Lobelia pumila grandiflora*. 2. *Cerastium tomentosum*. 3. *Alternanthera magnifica*. 4. *Lobelia White Perfection*. 5 and 6. Broad band of *Cineraria acanthiæfolia*. 7. *Iresine Lindenii*. *a*. Band of *Centaurea ragusina*. *b*. Band of *Coleus Verschaffelti*. A similarly-designed bed may be coloured in several ways, and it may also be broken up into diamonds and triangles with good effect. Circular beds cut up into segments with lines of Golden Feather, or some other dwarf-growing silvery or golden-leaved plant, and the segments filled with *Alternantheras* or *Coleus*, have a very pretty appearance, as also do beds with a star of *Coleus* in the centre, and the points filled with Golden Feather. As regards the combination of colours, it will serve all practical purposes if it is said that red and gold are best placed in conjunction, and blue and white; white, however, contrasts well with red, chocolate, and crimson shades; but blue does not produce a good effect in juxtaposition with yellow foliage. The undermentioned are the most useful plants for leaf-embroidery and carpet-bedding.

**DARK-LEAVED PLANTS.**—*Alternantheras* are most valuable for leaf-embroidered beds, but they require the temperature of an intermediate house or stove during the winter. They also require a similar temperature in which to strike the cuttings, both in autumn and spring. About one-third of the number should be propagated now, and the remainder in the spring. Select the healthy green shoots for cuttings, and insert them in properly-prepared five-inch pots, and place them in a shady position in the stove or cucumber-house. After they are struck, place them near the glass, and keep them moderately supplied with water during the winter. Every endeavour must be made in the early part of the season to induce them to grow freely, as the green shoots strike more readily, and when exposed to the sun they soon assume their proper colours. After they are potted off in the spring they will require stopping once. The best is *A. magnifica*. *A. paronychoides* is of free growth, but badly coloured; and *A. amæna* is too highly coloured to grow freely, and must be planted quite close together; it is not, therefore, suitable for amateurs. They are best adapted for second and divisional lines, as they do not exceed four inches in height, and *A. magnifica* covers a space of about five inches in diameter.

The well-known *Amaranthus melancholicus ruber* is very useful for centres and second lines of large beds. It usually attains a height of eight or ten inches, but by a judicious system of pinching it can be kept much lower. It should be sown in heat, towards the end of March, and when strong enough, potted singly or pricked off into boxes, and then carefully hardened off. It is rather tender, but

it may be had in perfection with a moderate amount of care. It is most valuable for those who have no convenience for keeping tender plants through winter. When it is desired to keep it down, the pinching must be commenced as soon as the plants are established in the beds.

The *Coleus* are most useful, but they must have a moderately-warm position. To obtain a stock for next season, the best course is to reserve a few plants of the several kinds which have been grown in pots during the summer. They require a stove temperature during the winter, and to be kept rather dry at the roots. In the spring they can be propagated to any extent. After they are potted off allow them to remain in the stove until established, and place near the glass to insure a short jointed growth. Plants raised from cuttings struck now may also be wintered most successfully. The best sorts are *C. Verschaffelti*, dark chocolate, and *C. Verschaffelti splendens*, bright crimson.

The dark-leaved *Iresine Lindenii* is well-deserving the attention of those who have not the convenience for wintering coleus, as it does well in the greenhouse. The cuttings should be struck in the autumn and potted off early in the spring. As it is naturally of upright growth, stop the leading shoots once or twice when the plants are in the pots, and commence stopping at an early stage after they are planted out if it is desired to keep them dwarf. Plant about six inches apart in the beds.

The *Perilla* is too coarse for carpet-beds, and all the other dark-foliage plants, such as the *Ajuga* and *Oxalis*, are comparatively worthless, so that it is of no use to say anything about them.

**SILVERY-LEAVED PLANTS.**—Several of the plants belonging to this section are quite hardy, and therefore within the reach of the humblest amateur. The dwarf *Antennaria tomentosa* is very useful for front lines, as it forms a dense carpet of silver not exceeding two inches in height. To propagate a stock it is simply necessary to divide clumps into small tufts and plant where required; it must not be allowed to suffer from drought when newly planted or it will perish. It also thrives most satisfactorily in light, friable soil, as the tender roots which push from the young growth can strike more readily into it.

The well-known *Cerastium tomentosum* still remains one of the best plants of its class for edging purposes, as it can be kept to any width with but little trouble. To have it in good condition it must, although quite hardy, be replanted annually. Cuttings struck now in boxes and wintered in a cold frame will make capital edgings next year, and quite surpass in neatness edgings formed of old plants taken up in the spring and divided.

*Centaureas* are useful for large beds, and may be raised from seed sown now, or by cuttings; the former will be the best plan for amateurs, as the cuttings do not strike very freely. It is simply necessary to sow the seed in shallow pans, and place them in a cold frame. When large enough put them in small pots. They can be wintered in a cold frame, or in the greenhouses. *C. ragusina compacta* and *C. argentea plumosa* are the two best for carpet-bedding.

August.



In propagating by means of cuttings, select the small side-shoots, insert round the sides of five-inch pots, and place in a cold frame. Pot them off in the spring, and plant out at a distance of six inches apart.

The cultivation of the *Echeverias*, which are most valuable for marginal lines, was fully described in the FLORAL WORLD for June by Mr. Cannell, therefore it is not necessary to allude to them further than to say small offsets taken off during August and September, inserted rather close together in shallow boxes and wintered in a cold frame, will be of the best size for bedding next spring.


The grey-leaved *Veronica incana* deserves a word for its neat growth and hardiness. To increase the stock, it is simply necessary to divide it into small pieces and then plant it in nursery-beds, or in the flower-beds. It usually attains a height of four or five inches.

GOLDEN-LEAVED PLANTS.—The new Golden Thyme, *Thymus citriodorus aureus*, is extremely valuable, for it is readily propagated, quite hardy, and very neat and rich in appearance. The points of the young shoots taken off now and inserted in shallow boxes, will soon strike, and may be wintered in a cold frame. In the spring they may be potted separately, or be pricked off into boxes, according as may be most convenient. It is necessary to keep them near the glass to maintain a dwarf growth.

Several yellow-leaved *Pelargoniums* may also be turned to good account in carpet-bedding. The best are *Meridian Sun*, *Robert Fish*, *Sybil*, and *The Moor*. These should be struck now in the open border, and when nicely rooted put in three-inch pots at the rate of three plants to each pot. In the spring they must be potted and carefully hardened off. It is important to keep them near the glass, to maintain a dwarf, stocky habit.

The *Golden Feather*, although now exceedingly common, is certainly one of the most useful golden-leaved bedders we have. To insure a stock of plants in the spring without having to raise them in heat, sow in boxes in September, and keep them out of doors all the winter in a sheltered position. In the spring they can be planted in nursery-beds, to afford them an opportunity of acquiring strength by the time they are required for the flower-garden. It is desirable to plant rather thickly.

## BEAUTIFUL TREES AT ASHBURY, NORTH DEVON.

 WITH much interest I read your paper on "Beautiful Trees for Kind Climates," in the March number of the FLORAL WORLD, and would mention a few shrubs that thrive luxuriantly without protection in the gardens at Ashbury, in the centre and cold part of Devonshire, north of the Dartmoor Hills, and seven miles from Okehampton. A small plant of *Escallonia macrantha* was planted in the open ground about twenty-five years ago. In severe winters the leaves



have been touched with the frost, but with the month of May it has always regained the full beauty of its foliage. Once only has it been really injured. The heavy snow of March, 1867, injured its branches, and it had to be cut back to the stock. Although not so large as it was before this disaster, it has attained the respectable size of forty-two feet in circumference. The main stem is divided into two parts, close to the ground; one stem measures eighteen inches round, and the other may be a trifle smaller. Numerous layers have been taken from this plant, which also thrive luxuriantly in all positions and aspects. The *Escallonia* has been the usual favourite evergreen for winter decorations, mixed with the *Venuta* rhododendron (?), also in the open air. The gardens at Ashbury are on high ground, but well sheltered with trees. The soil is fibrous, and good peat easily procurable. All American plants grow in perfection. The pretty *Kalmia latifolia* attains a great size, one specimen measuring forty-seven and a half feet round. The white Indian azalea has flourished in all aspects without protection of any kind, in the open ground, for full thirty years, blooming profusely in May and June. One plant measures twenty-six feet round, and some may be even larger. They spread rather flat and low. The pink Indian azalea has been as long-lived, but it is capricious in flowering. The old plant has been divided into two, each about nineteen feet round. No other varieties of Indian azaleas have been tried in the open air.

The *Arbutus unedo* has flourished for ten years, and fruits well. Three varieties of *Euonymus* have stood the past winter as well as *Veronicas*, but the latter cannot be depended on. The trailing *Tropæolum speciosum* is a perfect weed. The round-leaved *Cyclamen* of Italy (*Cyclamen coum*) covers the turf in February with its lovely little flowers, mingled with snowdrops. It is supposed a potful of corms was accidentally thrown away, and that they planted themselves, and have increased from year to year.

I inclose with this a small piece gathered from the old *Escallonia*, and from the white and pink Indian azaleas, each thirty years old.

I would add, myrtles will rarely live at Ashbury in the open air during the winter, the sea-coast being, at the nearest point, twenty-five miles distant.

J. H. W.

## DESIGN FOR A FLOWER-STAND.



HE subjoined figure represents a useful and effective flower-stand for the conservatory or entrance-hall; and it has the advantage that any carpenter could make it, and it admits of a higher degree of ornamentation than is shown in the figure. The inside of the lower compartment should be coated with pitch, or fitted with movable zinc trays. The stem and branches should be of stout iron rods, and the pots should be movable, and consist of some light, elegant material, such as bitumenized paper or zinc, and they may be

covered with the folding covers unless they are elegantly painted. The plants for these pots must be grown in the ordinary way, and inserted when at their best; and, of course, removed and replaced by others when past their prime. The base may be filled with pot-



FLOWER-STAND FOR THE CONSERVATORY.

plants, or with a bed of soil, in which the plants will grow without pots. As a rule, all such ornaments should be furnished with pot-plants, because of the high finish required, and the difficulty of insuring this, unless the plants can be changed quickly, as occasion may require.

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## NOTES ON NEW FERNS.



**ADIANTUM ELEGANTISSIMUM**, shown by Mr. B. S. Williams at the great exhibition at Bath, is as new in aspect as it is in name; although, to speak the truth, the name would suit almost any adiantum. This, however, is peculiarly distinct, and might be likened to the inflorescence of a grass, such, for example, as *Agrostis nebulosa*, so minute are the pinnules, and so light and cloud-like the whole texture of the plant. For a warm house it is a most desirable fern, and it will probably prove of the utmost value in dinner-table decorations.

**ADIANTUM SPECIOSUM**.—This adiantum is as new in look as the last-named, but in quite a different style, for here we have the bold habit and large pinnules that characterize the lovely *Farleyense*, but different in detail, and likely to prove in every way acceptable. The fronds are large and leafy, spreading out gracefully with distinct purplish rachis, and large, flat, regularly-scolloped pinnules of a greyish-green colour. This was well shown by Messrs. Veitch and Son, of King's Road, Chelsea, at the recent exhibition at Bath.

**ADIANTUM PERUVIANUM**.—This novelty of Messrs. Veitch and Son is of the princely kind, for it actually excels in nobleness and richness the well-known *A. trapeziforme*. It is a strong grower, with large, arching, pendant fronds, and large green pinnules of a sub-trapeziform outline. The fronds are supported by black, glossy stems or stipites, which do not rise from a crown but from a spreading caudex, and which arch over outwards in the most elegant manner. It is one of the grandest ferns known for a warm fernery.

**ADIANTUM AMABILE**.—Messrs. Veitch and Son obtained this fine fern through their late collector Mr. Pearce, and it constitutes a beautiful memorial of the successful botanical traveller who fell a victim to one of the customary accidents of his dangerous calling. The fronds are of fair size, averaging fifteen inches in length by ten inches in breadth; the pinnules are large in proportion, and of a lovely light-green colour. When the young fronds are rising, the plant emits an agreeable perfume. It is a cool-stove or intermediate-house fern.

**SCOLOPENDRIUM VULGARE AUREUM**.—We have been acquainted with this fern for some years, and yet we feel bound to speak of it as new, for it is yet but little known; although, for our own part, we have known it long enough to speak of it as constant in its peculiarity. It is a hart's-tongue fern of good form, very nearly resembling *crispum*, but differing from others of the genus in being of a beautiful golden-green colour. When planted in the cool fernery it is peculiarly distinct and attractive.

**PTERIS SERRULATA CORYMBIFERA**.—The typical *P. serrulata* is a weed that no one is bound to love. Several of its crested and crisped varieties are little better than weeds, and are really not worth cultivating. But this one is a grand and glorious tasselled fern, with erect fronds, which terminate in dense, bright-green

corymbose heads of an exceedingly rich character. It is a fine Wardian case and dinner-table fern, and well adapted for exhibition. We met with it in the nursery of Mr. B. S. Williams, Upper Holloway.

*PTERIS SERRULATA DIXONI*.—This is a grand companion-plant to the last-named, and in every way its equal in merit, though somewhat different. It grows rather tall, and the fronds spread out into crisped tassels six inches wide, and four inches thick, the colour a brilliant grassy-green. This is in the possession of Messrs. Dixon and Co., Amhurst Nurseries, Amhurst Road, Hackney.

*LOMARIA GIBBA CRISPA*.—A superb variety of one of the finest ferns in cultivation. This, we believe, is the variety raised some five years ago by Messrs. Cole, of Withington, which we remember having to adjudicate upon when it was in a very small state, and then had a most charming appearance. We have lately seen large specimens, and they are wonderfully distinct and beautiful, the fronds being crisped their whole length, and crested at the tips.

S. H.

## A FEW WORDS ON THE CRYSTAL PALACE ROSE SHOW.

BY W. D. PRIOR, ESQ.



ALMOST the first question asked by those interested in roses, not present at any of the great shows, is, "Was it a good one?" To the exhibition in question it might be answered relatively, Yes! absolutely, No! according to the stand-point from which it might be viewed. Whatever shortcomings, however, were manifest on the occasion, were neither owing to the "Company" nor to exhibitors, but to the precarious character of our English springs, always more or less abounding in cold winds and night frosts, which act most prejudicially on those incipient buds from which ordinarily the show boxes of June are supplied. This year several nights towards the end of May were particularly detrimental to the young buds in the rosery, placing many well-known exhibitors utterly *hors de combat*, as the gaps on the "tables" abundantly proved. Of course there were many beautiful specimens to gratify spectators, which must necessarily be the case when the picked produce of some of the most celebrated nurseries in the kingdom are brought together, but they were fewer in number and more unequal in quality and development than on several previous occasions, and several noted exhibitors were absent altogether. Indeed, considering the enormous pressure on the Company's resources in preparing for the Shah's visit on the Monday—a *dies non*, Sunday, intervening—it would perhaps have been better to have postponed the show. However, everybody appeared in a gratified and admiring mood, which, considering the feast of beauty spread before their eyes, was not surprising, espe-



cially as it was not altogether a Barmecidal feast, visitors being allowed, after six o'clock, to purchase the favourites from the stands, and so inspect their perfections at leisure at home. This forms a perquisite to the rosemen. The table decorations, likewise, were far less numerous than usual. We were struck with the monotony of arrangement and the lack of invention displayed by even the best. It appears impossible for exhibitors in this class of the ornamental application of flowers to get beyond the stereotyped Marchian vase in glass, a centre piece, one smaller at each end, some with little pitchers attached thereto containing a little sprig—a most *jejeune* idea. Then there are the slender finger-glass receptacles, one for each guest, to take up and smell its contents during the intervals of the repast, if not knocked down, and the water distributed over the cloth. The use of grasses, too, appears carried to an excess. There was a diminution in the number of the “lac” or “riviere” ornaments, which are designs with looking-glass bottoms, an abomination to good taste. In only one instance was there a departure from the general arrangement, which deserves to be recorded, in the design from Mrs. Hudson, of Champion Hill. It consisted of three young palms, the largest in the centre, springing from a base of cut roses, sweet peas, heaths, and sprays of maidenhair. In our opinion this ought to have had all the prizes.

Taking the roses as roses through, *Baroness Rothschild* took first honours. The following were amongst the best in their several lines of colour :—

**DARKEST** (up to *Charles Lefebvre*).—*Souvenir de Dr. Jamin*, *Prince Camille de Rohan*, *Louis Van Houtte*, *M. Boucenne*, *Jean Cherpin*, *Pierre Notting*, *Vulcan*, plum; *Emperor de Maroc*, a fine bloom of *Louis XIV.*, *Xavier Olibo*.

**CRIMSON SCARLET TO BRIGHT CARMINE**.—*Charles Lefebvre*, *Duke of Edinburgh*, *Alfred Colomb*, *Senateur Vaisse*, a fine bloom or two of *Jacqueminot*, *Dr Andry*, *Comtesse d'Oxford*, *Francois Treyve*, *Marie Baumann*, *Ferdinand Lesseps*, *Marie Rady*, *Horace Vernet*, *Camille Bernardin*, *La Motte Sanguine*.

**CARMINE TO LIGHT ROSE**.—*Jules Margottin*, several good blooms; *John Hopper*, very fine; *Victor Verdier*, amongst the largest; *Marquise de Castellane*, one of our finest varieties; *Clemence Joigneaux*, *La Fontaine*, old; *Therese Levet*, *Elie Morel*, *Edouard Morren*, *Monsieur Noman*, *Comtesse de Chabriland*, *Madame Furtad*, a marvel of form, but a bad grower.

**PALE ROSE TO TINTED WHITE**.—*Abel Grand*, *Anna Alexieff*, *La France*, *Lyonnais*, *Mlle. E. Verdier*, *Reine du Midi*, *Felix Genero*, *Clothilde Rolland*.

In these last two sections it would almost form a catalogue to give a complete list of all noteworthy varieties; those named were especially fine.

The best **YELLOWS** were *Marechal Niel*, largely and well shown; *Gloire de Dijon*, *C. Forestier*, *Triomphe de Rennes*, *Mons. Margottin*. A stand of twelve clusters of *Persian Yellow* were interesting and remarkable. *Deconiensis*, *Souvenir d'un Ami*, *Souvenir d'Elise*, and several favourite teas, were well represented.

*Souvenir de la Malmaison* was unequal. New roses were below the mark. The best appeared to be *Abbé Bramere*, flowers of the Eugene Appert class, but superior; *Baron de Bonstetten*, after Monsieur Boncenne; *Baronne L. Uxkull*, carmine rose; *Etienne Levet*, after Victor Verdier; *Lyonnais*, pink; *Prince Stirby*, somewhat like Mdle. E. Verdier or La France, but a different shade of colour. *Annie Laxton* struck us as being no improvement on kinds we have enough of. Messrs. Paul and Son sent a new hybrid assimilated to the teas. From the wood it appears of a climbing habit: we must see more of it before pronouncing a definite opinion upon its merits. The same firm put up a pretty collection of convenient sized pot-roses. We have a shrewd suspicion that many of the best blooms upon the tables were cut from similar plants.

## THE MANAGEMENT OF FRUIT-HOUSES IN AUTUMN.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



THE management of fruit trees, grown under glass, is exceedingly simple after the crops have been gathered, but they must not, as is so frequently done, be left to take care of themselves from the time of the crops reaching maturity until the trees are pruned in the winter. The tree, it should be understood, has only done a portion of its allotted work when its crop is brought to maturity, for it has to produce a supply of fruit-bearing wood for next year, and it can only do this when maintained in a thriving condition by a proper system of management.

In the management of fruit trees, such as the peach, nectarine, and plum, the main essentials are to keep them properly supplied with water at the root, and the foliage clean by giving them a thorough washing by means of the garden-engine or syringe occasionally. Unless this is done, the foliage will become infested with red spider, and fall off prematurely, and the flower-buds be imperfectly formed in consequence. Trees in pots should, for the purpose of reducing the labour as much as possible, be moved to an open position out of doors, and loose material of some kind packed about the pots to prevent the too rapid evaporation of the moisture from the soil. They will require watering, of course, but the night dews and the rains will render syringing overhead well-nigh unnecessary. Trees planted out must be exposed as fully as possible by opening all the ventilators and doors to the fullest extent; and in all cases where the roofs are formed of movable sashes, they should be taken off, and put on again about the end of November. The borders must be kept in a nice moist condition, for even when the trees are perfectly at rest the soil must not be allowed to become dust-dry. If the trees appear to be growing with too great a degree of vigour, they may be checked by keeping the border in a drier

state than before the crop was gathered, but it must not be kept too dry.

For the first fortnight or so after gathering the last portion of the crop the trees should be syringed once a day, and the evening should be selected for the work. Afterwards, two or three times a week will suffice. If the trees should happen to be infested with green or black fly, fumigate the house two or three times, allowing one or two days to elapse between each operation. Tobacco, or tobacco-paper may be used; the latter is the cheapest when it can be obtained of good quality. In using tobacco-paper, if there is no fumigator at hand, take a flower-pot eight inches in diameter, make a hole on one side, about an inch above the bottom, then put a few red-hot cinders in it, and over these a layer of dry brown-paper. When the latter is fairly alight, and bursts into a flame, add a handful of dry tobacco-paper, and then proceed to fill with the latter damped sufficiently to insure its burning slowly. If the material is lighted properly it will not require blowing after it is placed in the house. It must, however, be watched from the outside, for if it bursts into a flame and continues to flare for a few minutes, it will soon do a considerable amount of mischief. When it burns through, the proper course is to stir up the unconsumed material, and damp it slightly; but if the house is only partly filled with smoke, a little additional material may be added.

The general management of grape-vines does not differ materially from that advised for fruit trees generally. They must have full exposure, a moist soil, and an occasional syringing overhead. Moreover, the laterals which push after this time should be allowed to grow unchecked, unless they become too crowded, and in that case they may be thinned out. It is a serious mistake to remove, at this stage, those as fast as they make their appearance, for they are promotive of a healthy root action, and materially assist in the formation of the buds. Even previous to the grapes being cut, the laterals may be allowed to extend themselves with a considerable degree of freedom; and it may be safely said that it is altogether wrong to rub every one off when an inch or so in length, and consequently should not be practised.

## CULTURE OF THE ONION.



It is not generally understood that the year of the onion begins in August, although it is everywhere known that the year of the spring bulb ends in August. The established rule for onion growing is to sow in March, and take up the crop when ripe; and the time of ripening so much depends upon the season, that the storing of onions begins in some years in the middle of July, and in others is deferred until far into September, or even October. What we have to say on this part of the subject may be new to many of our readers, but is not, in the proper sense of the term, new at all. We intend to

August.

insist on the policy of sowing in autumn, and that is why we treat upon the subject now, and lead off with the remark that "the year of the onion begins in August."

The onion is a profitable plant, in every sense of the word, and therefore should be generously dealt with. Many of us might endure, without any excruciating pang, the loss of a crop of asparagus, delicious as it is; or of carrots or parsnips, undeniably useful; but to lose the onion crop would be a heavy blow, and it would be especially felt, for our sakes, by the sweet salads on sunny spring days, and on hot summer nights, and by the ducklings that had been fattened near the herb garden, and had known the smell of sage from their earliest days upwards. The three graces of the kitchen-garden are the potato, the cabbage, and the onion; and they are also qualified to play the parts of the three strong men, for which performance the potato should be regarded as Atlas, the cabbage as Hercules, and the onion as Milo of Crotona. But you want information; ah! really I had almost forgotten that; but, after all, it may be that you have obtained a bit already, and if not so, we suggest that you think about it, with a view to sowing onions within ten or twenty days of this first of August.

**SOIL FOR ONIONS.**—There is much too much said in the books on this subject. Opinions are less valuable than facts, but I shall offer an opinion to this effect: that the onion obtains a very large proportion of its sustenance from the atmosphere, and support the opinion by the fact that onions may be grown for several years in succession on the same soil, with little or no help from manure. A collection of some thirty varieties have been grown in our trial-ground on the same plot for fifteen years in succession, without one failure, except in 1860, when the excessive rain made them gross and thick-necked, and we had to dry off the crop in an oven in the month of October, and they kept very badly. On this plot, spring and autumn sowing have been systematically practised, the plots devoted to spring-sown onions being occupied all winter with collards or winter greens, planted immediately after the removal of the onions, and the ground prepared for each crop by being well dug, one spit deep, and a thin sprinkling of Lawson's phosphoguanoo put in at the bottom of the trench as the work proceeded. We have long been convinced that the diseases to which onions are subject are more frequently caused by excessive manuring than by any inherent tendency of the plant to disease, or any extravagant *penchant* for it by the insects that occasionally decimate the crop.

There is no soil so good for the onion as that of an old, well-cultivated garden. A newly-broken pasture, on which potatoes or brassicas would do well, should not be selected for onions. The ground having been long cultivated should be thoroughly well dug, and as a rule, it is sufficient to dig one spit deep; but if the second spit is good, double digging may be useful; and whenever double digging may be safely practised, it should be resorted to, for it pays well to provide a deep-rooting plant with a deep, well-pulverized seed-bed. In a rotation system, onions should follow celery, the land being previously manured for the celery, and not manured at



all for the onions. But if a heavy crop of onions is desired, and the ground on which they are to be sown was not heavily manured for the previous crop, a sprinkling of guano or bone-dust will be required, or a good layer of rotten stable-dung must be put in between the two spits as the ground is trenched. We repeat that we take heavy crops of the finest possible bulk by digging one spit deep, and refreshing the soil with a thin sprinkling of phospho-guano, and know nothing of grub or any other impediment to success, save and except the weather; and as we trust to the autumn sowing for main crops, we generally have the crop ripened early and perfectly. All carbonaceous manures are particularly good for onions; hence, it is well to save for them the sweepings of chimneys, the finer stuff from a smother, in which, of course, there is much fine charcoal; and the finer parts of lime and plaster rubbish that may result from building operations. Any of these substances may be dug in as the ground is prepared, and it will be an additional advantage to the crop if some of them, more especially the soot, is spread over the surface *after* the seed is sown. In the books the use of soot as a top-dressing is advised; but the writers all agree in recommending that it be spread before sowing, which is a mistake, for it is more effectual if put on afterwards thick enough to make the ground quite black.

**SOWING AND SUMMER CULTURE.**—Prepare the bed by breaking up the soil well, for the onion will not thrive amongst clods, or on a very wet or very dry staple. The beds should be in an open sunny situation, four and a half feet wide, and the seed should be sown in drills across, so as to facilitate the action of the hoe between them. We never mark off beds, in the proper sense of the word, but sow lengthwise of the piece in drills six to twelve inches asunder, and walk between the rows when the hoe is used. The drills should be drawn carefully to the line, and be fully one inch deep. Sow the seed as thinly as possible, cover with the back of the rake, and tread the rows firmly. The time for sowing is from February to May, and from the last week in July to the first week in October. We find that two sowings are sufficient for all ordinary purposes, the most important sowing being made in the early part of August, and the other in the latter days of March, or as early as possible in the month of April.

As soon as the plant is well above ground, thinning should commence, and the spring-sown onions should be thinned earlier and more severely than those sown in autumn. A little judgment is needed in this work, and it may be exercised to the advantage of those who love young onions, for by successive careful thinnings, supplies of tender, sweet, small salad onions may be obtained nearly the whole year round from two sowings only, for just as the last thinning of the autumn-sown takes place, the spring-sown will be ready for use. The final distance for a good useful crop is six inches, but on a somewhat poor soil they should be left at four inches apart, for they ripen better when they jostle each other, and to do onions well the ground towards the end of the season should literally be paved with them. Ply the hoe between whenever weeds

appear; be careful always not to break the necks of the plants, or loosen their roots. Give them frequent heavy waterings with sewage, if you can, while they are green and growing, but not a drop after they show a tendency to ripen. When the ripening season approaches, say the middle of July in a hot season, and the end of the month or later in a cold season, pass the handle of the hoe over the bed carefully, to bend the stems down on the bed, at about two inches from the ground: this helps to swell the bulb and promote perfect ripening.

EXHIBITION ONIONS are grown in two ways: the one occasioning much trouble, the other little; and the last-named always very nearly, and sometimes quite, as good as the first. The seed is sown on well-pulverized, unmanured ground, about the middle or last week of May, in rows six inches apart. The crop is only moderately thinned, and of course is kept very clean with the hoe. In October the crop, consisting of bulbs the size of walnuts, is taken up, dried, and stored. Early in March the little bulbs are planted in rows a foot asunder, and six inches apart in the rows, on ground heavily manured; and when the planting is finished, a coat of fine charrings is spread on the surface between the rows. In the process of planting, the bulbs are placed on the surface, and a handful of rich soil is put around each to hold it in position, this plan being preferable to inserting them in the soil, for the onion does not thrive when the neck is covered. The easier method is to prepare the ground by laying a good coat of fat manure at the bottom of the trench in digging the ground, and then to prepare the seed-bed in the usual way, and sow in rows nine inches apart. They are to be thinned several times, and to have a final thinning to nine inches apart in the month of April, after which they should be systematically watered with liquid manure until they begin to show an inclination to ripen, when the blade should be bent down, and not another drop of water given. This method of cultivation will pay in any garden, without reference to exhibiting or the possible profit of praises and prizes. By either of these two methods onions may be grown in English gardens equal to the best of those that are imported from Lisbon and Madrid, and sold in the grocers' shops under the general designation of "Spanish onions."

PICKLING ONIONS should be small, and perfectly ripe. Sow in April, on well-dug soil, without manure, and do not draw a single blade; let the whole crop ripen as it stands, and the starving system will insure beautiful bulbs for pickling. The *White Nocera* is the best pickling onion save one, to which we shall presently refer, but *White Spanish* or *White Globe* may be sown instead, and they will answer nearly as well, though nothing can equal in appearance the silver-skin race, of which the *Nocera* is the best variety.

HARVESTING AND STORING.—It is usual to wait until the whole crop is ripe, and then to draw the roots and lay them in the sun to finish. This is bad practice, for some roots ripen earlier than others, and if rainy weather sets in, they make fresh roots after having had a rest, and are then deteriorated beyond recovery. Amongst a bulk of onions treated in this off-hand way, many will

begin to sprout before the winter is half gone; whereas, by better management, the whole may be kept nearly the same length of time, this, of course, depending in a great measure on the keeping properties of the variety. The proper way to harvest the crop is to draw the roots as fast as they ripen, and lay them on mats or boards in the sun, and take them under cover at night and during wet weather. By this treatment every separate plant is humoured, and the trouble is no greater; at all events, the more uniform and perfect ripening secured will more than compensate for any little extra labour occasioned. As they become thoroughly well dry and shrivelled at the neck, they may be put in nets, or bags, or wicker baskets, and temporarily stored in a dry shed *in the full light*, and on wet days they may be roped and hung to the rafters to supply the kitchen or market as required.

It may happen that just as the crop is ripening, and should be lifted, dull rainy weather will set in. As to what is to be done in such case, each one must judge for himself, but a general advice may be given to this effect—that, as the crop is too valuable to be lost without a struggle, it would in such a case be prudent to take it up, and cut off the blades four inches above the neck, and put the whole of the bulbs in a cooling oven, with the door open, and repeat the process three or four times, at intervals of a day or two, to compel them to ripen. If it be asked what should be the temperature of the oven, we can safely give a wide range, for it must be above 60° and it may be below 100°, but an average of 80° may be considered the proper temperature. When onions are stored in dark houses, they should be on ropes, or very thinly spread on shelves. If the household demands large onions late in the spring, a sufficient number of large bulbs of late keeping sorts should be seared at the neck and the base with a hot iron, but it must not be so hot as to scorch the place it touches.

DISEASES AND INSECT ENEMIES.—We have never had on our ground any serious disaster with the onion crop, and, therefore, perhaps, cannot properly advise on the prevention or cure of diseases, or the extermination of insects that attack the onion. Some years ago we prepared some seed-beds for onions on a plot of old garden ground we had just taken, and in respect of which we were informed that it abounded with every possible grub, worm, and fly that wages war with the gardener. When the beds were ready for sowing, we gave them a heavy watering with sulphuric acid diluted with thirty times its bulk of water, and sowed the seed the next day. The result was a wonderful crop of onions, but whether the acid killed the vermin or simply enriched the ground by acting on its stony constituents we never took pains to inquire. We have sometimes seen a grub or two, or rather have noticed the blade fall over here and there as though there was something wrong, and have at once watered the crop with a solution of nitrate of soda, half-a-pound to the gallon, and that appeared to stop the plague. There is not a more certain or healthy plant grown than the onion, that is, of course, when it is grown properly.

SEED may be raised easily, but the cottagers' rule is the worst

August.



possible. He selects soft and half-spent bulbs, that are not good enough for roasting, and if they produce seed it is of poor quality, and will not produce handsome bulbs. At the end of February the finest bulbs obtainable should be planted in poor soil, a foot apart each way, and so deep that the necks are just covered. Keep them clear of weeds, and before they come into flower provide them with rails attached to posts, to which tie them to prevent their destruction by storms. Stout tarred string will answer, but rails are better if the heads are large. Cut the heads as soon as they become brownish, and lay them on cloths in the sun to finish. Our mode of saving onion seed is to lay some large bell-glasses hollow side upwards on the stage of a sunny greenhouse, and as the heads are cut they are thrown in. In the course of a few days the seed is found clean and ripe at the bottom, having shelled itself out without giving a moment's trouble. Nine-tenths of all the small seeds grown may be saved in this simple manner. The books say, "it is of the utmost consequence to employ seed of not more than one year old, otherwise scarcely one in fifty will vegetate." This is nonsense, for we have oftentimes obtained as fine crops from seed four years old as from that of the previous year. However, we do not recommend old seed, for it is generally agreed that onion seed should not be kept any great length of time, and things commonly agreed on are usually founded on observation and experience.

THE POTATO ONION is a serviceable cottage garden root, but of comparatively small importance to those who cultivate a kitchen-garden in a systematic manner. It is the rule in the West of England to plant the bulbs on the shortest day, and take them up on the longest. They may, however, be planted as late as March, but as they keep badly, the earlier they are in the ground the better. They require the ground to be well dug and in good heart. The rows should be one foot asunder, and the bulbs six inches apart in the row, and the best way to plant is to lay down the line and insert the bulbs with the aid of a dibber, every bulb being planted deep enough to have a firm grip in the soil without being quite covered. The hoe should be plied frequently between the rows, but in such a manner as not to inflict any injury on the roots, and a mere skin of earth may be drawn to the base of the green blade once or twice during the summer.

THE TREE ONION produces a double crop, one consisting of small bulbs at the top of the tall stem, the other of large bulbs similar to those of the potato onion, at the root. Both root and top bulbs may be planted for a crop, but the root bulbs are the best. Treat in precisely the same way as the potato onion, but do not plant before the end of February, for if a severe frost occurs the roots may be destroyed. As soon as the stems rise, provide laths or tarred rope, or some other cheap and rough support for them, for if they lay on the ground slugs and snails will eat through the stem, and the development of the top bulbs will be arrested. When the stems begin to turn yellow, cut them close over the ground, and lay them with their crowns untouched on boards or cloths in the sun to dry, and after a few days tie them in bundles, and suspend them in a dry loft or



storeroom ; or rub off the little bulbs and store in nets or chip boxes. The root bulbs are excellent for stews and other purposes for which onions are employed in the kitchen, and the top bulbs make a better pickle than any other kind of onion, their flavour being peculiarly sweet and mild. The tree onion is but little known, yet it is at once good and profitable, provided it obtains the few small attentions it requires at the proper time. If the crowns are allowed to lie on the ground, as they will do if unsupported, there is a likelihood of a considerable proportion of the crop being lost through the assaults of vermin ; snails, slugs, and woodlice having a peculiar liking for this particular sort, owing, no doubt, to its fine flavour.

THE SELECTION OF VARIETIES must be determined by the requirements of the cultivator. For a good crop of useful onions any of the race of *White Spanish*, such as *Reading*, or *Nuneham Park*, will answer every purpose, and as they keep well and look well, they are among the best of market onions. For autumn sowing, the *Tripoli* or *Strasburgh* sections are the best ; and, perhaps, the very best two sorts amongst them are *Red Tripoli* and *Giant Rocca*. If particularly large onions are required, sow *Giant Madeira*, both in the open ground and in a frame in August or September, and plant out in March, in a bed of rotten stable manure six inches deep, made on a bottom of hard soil. None of the *Madeira* or *Portugal* race keep long, and therefore there should be no more grown than are likely to be required for autumn and early winter use. Amongst the late-keeping sorts, *James's* is considered the best. A true sample of this variety should be tall, and broader at the shoulder than the base, somewhat of the shape of the great oil-jars which figure in the story of "Ali Baba ; or the Forty Thieves." A fine onion for main crop is *Trebons*, which may be known by its appearing as if pinched by finger and thumb near the root. The *Welsh Onion* ranks high with many who require salad onions in winter ; but we could never find any use for it, always having plenty of silvery little onions from autumn sowings, which are certainly preferable to the rather puffy green blades of this variety, which does not produce bulbs. However, the *Welsh onion* is very hardy, and may be very useful in cold climates, where the *Tripoli* or *Spanish* onions refuse to stand the winter. Moreover, if the green blades are desired in early spring for salads, as in many houses they are, there will always be found plenty rising from old bulbs in the store ; and while these are fresh and crisp, and fully exposed, they are excellent, both for soups and salads.

S. H.

## THE GARDEN GUIDE FOR AUGUST.

KITCHEN GARDEN.—The various kinds of winter greens claim the first attention, and it is necessary to insure at once a good supply, and a variety. By this time *Scotch kale*, *Brussels sprouts*, *broccolis*, *savoys*, etc., ought to be strong, and where they have been planted between rows of peas, to stand the winter, should now be

August.

looked over, and every other plant taken out, to make fresh rows, if they are at all crowded. Cabbages of most kinds may be sown in the second week of August. Sow also prickly spinach on slopes in rich soil, and plenty of Hammersmith cabbage and black-seeded cos lettuce. Sow cauliflower from the 7th to the 20th to keep over winter in frames. The summer-sown endive will now be strong enough to plant out on slopes, or raised beds. Give plenty of water, alternating with liquid manure, to celery, and do not earth it up until it is well grown, the earthing being only to blanch it for use. In good open situations, vegetable marrows, for a late supply, may still be planted. Use grass mowings to mulch the ground between crops that are likely to suffer from drought. Earth up the earliest rows of celery and leeks; thin out the rows of parsley, so as to get rid of every plant not well curled. Remove decayed leaves from cucumbers and gourds, to prevent the growth of moulds and fungi about them in damp weather, and take cuttings, or sow seed, for cucumbers to fruit during winter.

FLOWER GARDEN.—After the middle of the month commence to propagate bedding plants for stock; of geraniums, ripe hard shoots make the best plants. Fuchsias come best from the points of young growing shoots. Strike verbenas and petunias from the points of young shoots. Herbaceous plants may also be struck in quantities to keep over winter in frames, such as pansies, dielytras, double wallflowers, double Canterbury bells, double feverfew, and hollyhocks. Keep dahlias and hollyhocks well supported, and put stakes to chrysanthemums before their heads become heavy, as a protection against storms. Pompones may still be struck for blooming in pots. Plant out pinks and carnations in nursery beds, in well-manured loam. Give plenty of water to chrysanthemums, with occasional doses of strong liquid manure. Seed of pansies may be sown, as may also most hardy annuals, to stand over winter for early blooming next spring; the latter should be sown thick, on poor, dry, hard ground, to induce a stubby and hardy growth. Some seed should be saved for a second sowing in September, as, in the event of protracted warm weather, such as we had last year, some of the first sown may bloom this season. The sorts to sow now are calliopsis, clarkia, collinsia, godetia, larkspur, lupinus, nemophila, nolana, French poppy, and dwarf schizanthus. There is still time to raise a stock of hardy perennials for next season, but not a day should be lost in getting in the seed. The most useful are antirrhinums, delphiniums, dianthus, geum, hollyhocks, Indian pink, lupinus, phlox, potentillas, silenes, sweet-williams, and wallflowers. Those already up in seed beds should be examined and transplanted, before they are drawn through being crowded. Plants left for any length of time to spindle are likely to perish in winter, and never can make such good specimens as those that have had plenty of room from the first. Continue to bud roses and fruit trees, choosing damp, dull weather—they take best just after heavy rain. In budding on the Manetti stock, enter the bud, just above the collar, close to the ground, the proper mode of planting afterwards being to sink the base of the bud below the surface, so that the rose will root as well as the stock.

Pompones *chrysanthemums* may still be increased. Either the tops may be struck for pot blooming, or shoots of eight or ten inches in length may be layered into five-inch pots, and removed when moderately well established. Dwarf plants of the pompones and lilliputian varieties are very useful for decorative purposes at the end of the season, and are adapted to purposes for which large bushy plants would not be so suitable. The large flowered kinds do not bear to be stopped so late as the pompones.

**GREENHOUSE.**—Show and fancy pelargoniums that have been trained out and pruned should be repotted as soon as they have broken regularly. Put them into the smallest pots into which their roots can be got, so as to allow of a series of shifts till they are once more in their blooming-pots. Young plants and greenhouse shrubs should be well hardened now, before going to their quarters for the winter. Let camellias and azaleas have plenty of sun and little water. Summer-struck geraniums, achimenes, and fuchsias, may be got into bloom now, to keep up a display till Christmas. Shift all forward stock required to bloom early. Cinerarias should now be strong, and must have no check; see that they are kept clear of fly, for they are very subject to it. A cold pit is the best place for them. Whatever needs potting pot at once. Late shifts result in deaths during winter. All plants winter best when their pots are full of roots.

**STOVE.**—All specimen plants in free growth must have attention now to secure a perfect ripening of the wood before the season closes. Let everything have now as much sun as can be borne without injury, which is best done by removing the shading from part of the house, and there placing whatever is likely to bear the exposure. Use water freely on the paths and beds, to keep up a moist atmosphere, and give air at seasonable times liberally. Plants to be used for autumn and winter decoration ought now to be in a thriving condition; if any want a shift, attend to it at once. Stop young plants of *Euphorbia*, *Aphelandra*, *Justicia*, *Poinsettia*, *Ixora*, *Æschynanthus*, etc. As the month progresses, shut up earlier, and give less and less water to the roots of plants, and especially those which should be going to rest. If we have a period of dull, chilly weather, use fire-heat, for a chill will do more harm now than in a month or two hence, when vegetation will be in a state of repose.

**ORCHID HOUSE.**—Orchids in full growth must have moisture and heat sufficient to maintain them in health, but the judicious cultivator will not often have to light a fire this month. Those going to rest to be encouraged by removal to a cooler part of the house, where they must have less water, but be kept plump by frequently sprinkling the paths and stages. This is a good time to separate pseudo bulbs for increase of stock, and to pot on small plants to get them established before winter. Orchids that have been a long time in the same pots need top-dressing with fresh material. Shut up at four till the third week of the month, and then shut up at three. After shutting up, syringe gently with water of the same temperature as the house.

**FRUIT GARDEN.**—To keep the fruit as long as possible, throw

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nets over fruit bushes to keep off the birds, and give a little shade to keep a few bunches hanging for a late supply. Put wasp-traps about vines and peaches. Nail in all good shoots on wall trees, that they may have the heat of the wall to ripen them. Encourage in every possible way the ripening of the wood of the season. If any trees have been allowed to become crowded, thin them a little now to admit the sunshine amongst the well-placed shoots and spurs. Windfalls to be sent into the house every morning for immediate use. Gather fruit in dry weather, and, as a rule, not till quite ripe. Plant strawberries where it is desired to form new beds; lift the runners carefully, and after they are planted keep them well watered until they are nicely established.

### HORTICULTURAL AFFAIRS.



**ROYAL HORTICULTURAL SOCIETY.**—EXHIBITION OF PELARGONIUMS, July 16 and 17.—Upon this occasion the Society offered prizes for collections of specimen zonal, nosegay, and gold, silver, and bronze zonal Pelargoniums, and in addition to these prizes were also offered as follows:—By Dr. Denny, for varieties raised by himself, and distributed by Mr. W. Paul; by Mr. George, of Putney, and Mr. Smith, of Tollington Park, for varieties raised by Mr. George; by Mr. Pearson, of Chilwell, for varieties raised by himself; and by Mr. H. Cannell, Station Road, Woolwich, for varieties not in commerce. The prizes in all the classes were exceedingly well contested, and consequently all the classes for zonal pelargoniums were well represented. The specimens staged in the principal collections were exceedingly good, and altogether it was the most successful and thoroughly representative affair of its kind that has yet been held, and a number of remarkably fine sorts were exhibited.

**ROYAL BOTANIC SOCIETY,** July 8.—The exhibition held in the gardens of this society on the above-mentioned date was very poor. The table decorations were very good, and a few respectable collections of plants were shown. In connection with the exhibition an evening *fête* was held. The latter was well attended, and was unquestionably one of the prettiest sights yet witnessed in the metropolis. The weather was fine throughout, and not too warm, and the *fête* was, as a whole, and in every particular, thoroughly successful. The gardens were brilliantly illuminated with thousands of small oil-lamps, which were placed round the flower-beds and ornamental vases, and in every conceivable position throughout the grounds. From the anemometer tower on the mound Gramm's patent light, which has been recently tried at the Houses of Parliament, gave a most powerful illumination, while from seven other prominent parts of the gardens electric lights were displayed. At intervals the gardens were further illuminated by magnesium lights and various coloured fires, and at these periods the scene was the prettiest imaginable. Experiments with electric lights were also exhibited in the course of the evening in the summer-house near the principal gate, and Holmes' patent danger signals were practically shown on the lake. The conservatory at the end of the principal avenue was lit up with magnesium burners from the outside and with oil-lamps of varied colours within, and in front was a dais for the President and the Duchess of Teck and their friends.

**THE ROSE SHOWS.**—The exhibitions of roses held in various parts of the country during the season have been quite up to the average of former years. The earliest exhibitions, which were held at Bath and the Crystal Palace, were not so good as usual, for the flowers appeared to be wanting in substance, and the lighter varieties lacked freshness. At the exhibitions at Hereford, Oxford, Frome, and more especially at that held in the Gardens of the Royal Horticultural Society, the majority of the blooms staged were remarkably good. Indeed the finest blooms at South Kensington have probably never been surpassed. To give a report of each of the exhibitions in detail would occupy more space than can possibly be spared, and



instead of attempting the task we have prepared a list of the finest varieties for exhibition purposes. It is as follows:—*Seventy-two Hybrid Perpetuals*.—Abel Grand, Achille Gonod, Alfred Colomb, Annie Wood, Antoine Ducher, Baroness Rothschild, Beauty of Waltham, Camillo Bernardin, Caroline de Sansal, Charles Lefebvre, Charles Rouillard, Charles Verdier, Clothilde Rolland, Comtesse d'Oxford, Devienne Lamy, Dupuy Jamain, Dr. Andry, Duc de Rohan, Duke of Edinburgh, Edouard Morren, Elie Morel, Emilie Hausberg, Etienne Levet, Exposition de Brie, Felix Genoro, Ferdinand de Lesseps, Francois Louvat, General Jacqueminot, Henri de Ledechaux, Heuri Pages, Jean Goujon, John Hopper, Lælia, La Reine, La Ville de St. Denis, La France, Leopold Hausburg, Louis Van Houtte, Madame Alice Dureau, Madame Bontin, Madame Clemeuce Joigneaux, Madame Marie Girodte, Madame Lacharme, Madame Thérèse Levet, Madame Victor Verdier, Mlle. Bonnaire, Mlle. Eugene Verdier, Marguerite de St. Amand, Marie Baumann, Marie Rady, Marquis de Castellane, Marquise de Mortemart, Monsieur Bonceune, Monsieur Bonsetten, Monsieur Woolfield, Mrs. Charles Wood, Olivier Delhomme, Perfection de Lyon, Pierre Notting, President Thiers, Princess Beatrice, Prince Camille de Rohan, Reine du Midi, Richard Wallace, Senateur Vaisse, Sophie Coquerel, Reynolds Hole, Thorin, Thyra Hammerich, Viconte Vigier, Victor Verdier, Xavier Olibo. *Thirty Tea Roses*.—Adrienne Christophle, Alba Rosea, Belle Lyonnaise, Bougère, Celine Noirey, Cheshunt Hybrid, Comtesse de Naddillac, Devonienne, Gloire de Dijon, Homer, Le Nankin, Madame Cecile Berthod, Madame Camille, Madame Jules Margottin, Madame de St. Joseph, Madame Falcot, Madame Margottin, Madame Villermoz, Marie Ducher, Marie Sisley, Marie Van Houtte, Monsieur Furtado, Niphotos, Perfection de Montplaisir, President, Reine du Portugal, Souvenir d'Elise Vardon, Souvenir d'un Ami, Vicomtesse de Cazes. *Twelve Yellow Roses, Noisettes*.—Celine Forestier, Cloth of Gold, Jane Hardy, Lamarque Jaune, Marechal Niel, Narcisse, Reine d'Or, Triomphe de Rennes. *Tea*.—Belle Lyonnaise, Jaune d'Or, La Boule d'Or, Madame Cecile Berthod, Madame Falcot, Madame Margottin, Monsieur Furtado, Perfection de Montplaisir, Reine du Portugal, Suf-rano, Tour Bertrand, Vicomtesse de Cazes. We also visited several of the most important rose nurseries when the roses were at their best, and the undermentioned were selected as being especially adapted for garden decoration. The flowers, although not good enough in form for exhibition purposes, are very large and attractive, and produced in wonderful profusion. The majority of those recommended for exhibition may also be employed as garden roses:—Anna Alexieff, Baronne Prevost, Charles Turner, Charles Margottin, Comtesse de Jaucourt, Duchess of Sutherland, Elizabeth Vigneron, Eugene Appert, Geaut des Batailles, Gloire de Ducher, Glory of Waltham, La Brillante, Lord Napier, Madame Alfred de Rougemont, Madame Cambacères, Madame Gustave Bonnet, Madame Hector Jacquin, Paul Neron, Pius IX., Souvenir de la Reine d'Angleterre, Souvenir de M. Poiteau, Thomas Methven, Triomphe d'Alencon.

## TO CORRESPONDENTS.

ROSE, SOUVENIR DE LA MALMAISON.—Will you be so good as to give me, in the next number of the FLORAL WORLD (to which I have long subscribed), your opinion on the following subject. I have in my garden two fine standard roses, Souvenir de la Malmaison, both of which are most provokingly disappointing. They produce large, clean, and apparently vigorous buds, but when about half-blown they become almost invariably mouldy and faded, and either burst at the side before full grown or drop off. I am told this is the case in a garden close by also. At this moment one of them is in front of the window laden with beautiful buds, but also with three wretched, decayed-looking, nearly full-blown flowers, all brown and withered, yet of very large size. The foliage is remarkably full and handsome. Do you think the soil is not suitable?—it is clay—yet Gloire de Dijon, Triomphe de Rennes, Celine Forestier, and several others of the same kind, flourish greatly, as well as many choice dark varieties, particularly Prince Camille de Rohan. I have had a splendid show this summer. Every rose has seemed to excel itself except the Malmaison. I have a large border of roses raised entirely from cuttings by myself, containing many choice sorts, as General Jacqueminot, Baroness Rothschild, Sir Joseph

August.

Paxton, Géant des Batailles, Gloire de Dijon, Madame Plantier, and several others, all of which have flowered well. If you will be good enough to tell me what you think can be the cause of the failure of Souvenir de la Malmaison, and if I can adopt any kind of treatment to remedy it, I shall be much obliged. Both the standards are well placed in sunny positions, one on the lawn in front of the house, the other in a warm border of the kitchen garden. Excuse my troubling you, and accept my thanks for many valuable hints in the FLORAL WORLD which I have availed myself of.—*A Rosarian, Amptill.* [This fine rose frequently refuses to open its flowers in the manner mentioned, owing to some peculiarity in the soil or situation. Rose-growers acquainted with its peculiarities frequently assist the flowers to expand. As the buds are so eminently beautiful, we should advise you to content yourself with removing the large partly-expanded flowers as soon as they become unsightly.]

OLEANDER AND MAGNOLIA.—*A Constant Subscriber* to the FLORAL WORLD begs the Editor to inform her as to the management of the Oleander. She was made a present of one, which had been reared in a conservatory, but which had been taken out of that and given to a person, who kept it out-of-doors all summer, and brought it in in winter, for two years. It was then given to the writer, who has kept it since this time last year in a warm room and in a bay window, where it gets no actual top light, but has light all round, and the top of the window is considerably above the top of the tree. She has followed all the rules she knows of—namely, keeping it well watered, and the saucer in which the pot stands is kept always half-full of water; but the plant has not flowered since it left the conservatory, and this year the writer was in hopes it was going to be covered with bloom, but the flower-buds seem only to drop off instead of expanding further on. She also wants to know the name of the enclosed flower, which was raised from seed, but the name was washed away, and it is unknown by anyone *here*. Also what is the best way to protect a large Magnolia, growing against the front of a house, which is going to be repaired and altered. The centre stem seems to be too strong to be bent, but there are several younger boughs. Would it be well to cut down the strong one, and trust to the younger ones for a new tree? or is there any other way by which it can be managed? Answers to these questions would be a great boon. Can you name the enclosed Fern, and is it hardy? [Keeping the pots constantly in saucers of water would account for the flower-buds of the Oleander dropping in the manner mentioned. The plant requires liberal supplies of water during the growing season, but the soil must not be kept in a constant state of saturation. It will be necessary to fasten the branches of the Magnolia away from the wall, and then protect them from injury with canvas mats or tarpauling. It is impossible to offer any advice on cutting back the branches—that must be done by some competent person who has seen the tree. The specimen of the flowering plant is not sufficient for identification, and we cannot undertake to name ferns from rough pencil sketches.]

CLIMBING ROSE.—I wish in the autumn to plant against the vacant N.W. wall of a house a climbing Rose, H.P. section, if possible. My *beau idéal* of a rose is one of bright fresh colour—in the way of Anna Alexieff—but with margin paler than centre. Can you name a few such amongst the H.P.? Your so doing in next FLORAL WORLD would oblige. New roses, Madame Lefebvre Bernard, and Richard Wallace, by descriptions, seem to be about the desired sort of thing.—*A New Subscriber.* [The rose which appears most likely to suit you is *Princess Louise Victoria*, which is one of the most free-growing and free-flowering hybrid perpetuals in cultivation. The flowers are of medium size, but they are produced in huge trusses throughout the season, and far into the autumn.]

EUPHORBIA SPLENDENS.—*Young Beginner.*—Young shoots that have become rather hard will strike freely in good sandy soil, and the pots plunged in bottom heat, such as is afforded by a cucumber bed. Pot off when rooted, using equal parts of peat, loam, and leaf-mould, and plenty of crocks broken fine; and stop frequently to keep the plant bushy and within bounds. Grow the plants freely until they become nice specimens; then pot them in loam, leaf-mould, and a large proportion of lime rubbish, and small pieces of broken bricks; they will then flower freely, much better than in a rich compost.



5



2

4

PLUM

1. One's + the top.

2. The top.

3. The top.



## PLUMS FOR SMALL GARDENS.

*(With a Coloured Plate.)*

BY JOHN SCOTT,

Merriott Nurseries, Crewkerne, Somerset.



THE plum may be justly considered one of the most useful of culinary and dessert fruits that could be grown in small gardens, for it may be most successfully cultivated in the open quarters as well as when trained against walls; and in the southern and midland counties it is by no means particular as to aspect. It is also very accommodating as to the manner in which it is trained, and the majority of the varieties may be grown as bushes, pyramids, espaliers, and standard trees. For small gardens the bush and pyramidal form of training is the best when the trees are away from the walls, and those against walls should be trained with their main branches extending equally in all directions in much the same manner as the ribs of a lady's fan. To some readers of the FLORAL WORLD it may appear too early to speak of planting fruit trees; but I would assure them that October is the best time in the whole year for the work, and therefore before the end of September all alterations should be determined upon, so that there may be no delay hereafter. As soon as the leaves fall freely the trees may be lifted and replanted with advantage, for they at once commence to make new roots, and by the time the winter is upon us they will be well established in their new quarters. They will consequently be in grand condition to make a vigorous growth as soon as the weather is warm enough to start them into life, whereas those planted between New Year's day and March will have to make new roots before they can make much progress. Apart from this, the soil is in a better working condition in October and also possesses a greater degree of warmth than in the depth of winter or in early spring, and it is therefore more favourable to the development of new roots. There is yet another point in favour of early planting, and that is the greater facility which exists in the autumn for obtaining first-class trees of the more popular sorts, for it may be assumed that those who are wise enough to buy early will certainly take proper care to select none but the best trees. Holding, as I do, immense stocks of fruit trees I am able to speak with the greatest degree of confidence upon this point.

As regards the character of the soil most favourable to the growth of the plum it may be said that few fruits are less particular as to the soil in which they are grown; therefore the trees may be planted in almost every garden in the country without there being any cause to fear the ultimate results. It may, however, be stated that heavy soils are preferable to those of a light character, and in my practice I have found the plum come to the highest perfection in strong clayey soil mixed with a liberal proportion of sound loam,

such as would be obtained from the top spit of an old pasture. Some few years since I had occasion to plant rather largely on a heavy soil, and I was quite astonished at the rapid progress of the trees, they seemed to revel in the strong clay, and I think that the peach, nectarine, and apricot would do much better were they planted in a soil which had a liberal proportion of clay incorporated with it previous to their being planted. I am well assured that if this was done in the case of the last-mentioned fruit we should not hear so much of the Moorpark and other varieties losing their branches. When the soil is very light and sandy it will be highly advantageous to apply a good dressing of strong clayey loam, but it must not for a moment be supposed that even in light soils the trees will not do without this dressing of clay.

As already stated, pyramidal and bush trees are the most suitable for growing in the open quarters, as they require less attention to keep them in order during the summer season than the espaliers, and moreover have a more ornamental appearance. To prevent loss of time-trees properly formed and large enough to produce a crop of fruit within a year or two should be selected; they will cost a trifle more, but where the space is limited it is much better to have bearing trees than to wait several years. In any case trees three or four feet in height should be purchased. In the case of pyramidal trees, the strong side-shoots which are produced just above the junction of the scion and graft must be repressed, or they will spoil the contour of the tree.

The young growth will require stopping or pinching once or twice during the summer; this as a rule should be done towards the end of July. At the same time some of the shoots may be removed altogether from parts of the tree where it is overcrowded with wood; all gross shoots should also be rubbed off during the summer. The winter pruning consists in removing the weakly shoots where they are not required for furnishing the tree, and shortening the stems back to about six inches. To prevent their growing too freely root-prune or lift them every second or third year, according as may be required; of course, so long as they continue to make firm short-jointed wood and produce heavy crops of fruit, it may be inferred that no root-pruning will be necessary.

My collection of plums, which is one of the most extensive in the country, comprises nearly three hundred distinct sorts, and from these I have selected the following as being especially suitable for small and medium-sized gardens:—

*DESSERT.* — *Apricot, Liegal's.*—A medium-sized fruit, of a greenish yellow colour, and fine piquant flavour; ripe in September.

*Coe's Golden Drop.*—A handsome yellow fruit, of large size, and delicious flavour; ripe in October.

*Denniston's Superb.*—A first-rate, medium-sized fruit, equal in flavour to the greengage; August.

*Drap d'Or.*—An excellent little yellow fruit; ripe in August.

*Early Prolific, Hubbard's.*—A valuable purple fruit, ripening the second week in July. Also useful for culinary purposes.

*Early Prolific, Rivers's*.—Like the preceding; valuable for its earliness; the tree is a great bearer.

*Empress Eugenie*.—A fine, large, dark plum, of the most luscious flavour, most useful for cooking; ripe middle of August.

*Gage, Bryanston*.—A good, late, and rather large form of the greengage; ripe in October.

*Gage, Green*.—A well known and delicious variety.

*Gage, July Green*.—A valuable form of the greengage, ripening in July.

*Gage, Purple*.—A fine purple fruit, of medium size, and rich flavour; ripe in October, but if allowed to hang until shrivelled it is most delicious.

*Gage, Red*.—A valuable American variety; the fruit is of medium size and good flavour, and the tree a prodigious bearer.

*Golden, Lawson's*.—A medium-sized yellow fruit ripening in September, the tree is very hardy, and a good bearer.

*Guthrie's Late Green*.—A fine, large, yellow-green fruit, of a rich sugary flavour; ripe in September.

*Impératrice Blue*.—A fine, late, purple fruit; which is most delicious if allowed to hang until shrivelled.

*Jaune Hâtive*.—A pretty, little, dark fruit; ripe in July.

*Jefferson*.—A large, richly flavoured, yellow fruit, of great beauty; ripe in September.

*Kirke's*.—A large, handsome fruit, of a deep purple colour, and delicious flavour; tree hardy, and great bearer; ripe in September.

*Lawrence's Favourite*.—A fine, handsome, brisk-flavoured fruit, of a yellowish-green colour; ripe in September.

*Morocco*.—An excellent, dark-coloured fruit; ripe in August.

*Precoce de Bergethola*.—A useful, little, yellow plum; ripening in July.

*Reine Claude Violette*.—A large, handsome, purple fruit, of the most exquisite flavour.

KITCHEN. — The undermentioned are the most valuable for cooking, and are arranged in the order in which they ripen:—*Early Prolific, Early Orleans, Prince of Wales, Victoria, Diamond, and Autumn Compote*; the various forms of greengage are also most excellent in pies and tarts. For preserving, the undermentioned can be strongly recommended for their fine flavour and rich colour:—*Greengage, White Magnum Bonum, Diamond, Victoria, Winesour, Damson, and Autumn Compote*.

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WE learn from M. de Candolle that the 18th, and final volume of the "Prodromus" is in the press. To it will be added a general index of the generic names included in the whole book. The entire work comprises the description of 59,000 species of plants, of which 11,790 are described therein for the first time. The "Prodromus" was commenced in 1824, by Auguste Pyramus de Candolle, and has been continued, since his death, under the editorship of Alphonse de Candolle, who has himself contributed many of the monographs of various orders, as has also his son, Casimer, the grandson of the original projector.

## THE VALUE OF GLASS IN THE CULTIVATION OF FRUIT.



THE mischievous effects on the fruit crop of the frost of May 19-20 afford another important lesson on the value of glass in the production of home-grown fruit. We have several times directed the attention of our readers to the immense value of glass, and have, from time to time, presented illustrations of temporary and other coverings, designed for the protection of wall-trees, for the purpose of affording them all the help we can. We now return to the subject, and trust that the arguments advanced in favour of the more extended employment of glass in fruit culture will have fair consideration.

At the onset, we would observe that the cultivation of fruit in this country is not in quite so deplorable a state as to demand a revolution as the alternative of its entire abandonment. Our exhibitions keep us constantly reminded, that in all parts of the country the best fruits are skilfully treated and thoroughly appreciated, and, generally speaking, we believe sufficient is produced for our own consumption, though our markets are largely supplied with foreign produce. Communications with the Continent are now so rapid and certain, and the cost of freightage is, comparatively speaking, so small, that the foreigner, employing labour at a cheaper rate than rules here, renting land at less than English averages, and with a more intense and continuous flood of sunshine gratis, can compete with our own growers advantageously, and is likely, therefore, to a great extent, to keep command of our markets in respect of certain classes of produce. Nevertheless, English-grown fruit is by no means at a discount. First-class English grapes, which surpass in quality all other grapes, no matter where in the world they are produced, realize prices that are calculated to encourage home cultivation of this best of fruits. As to the general management of fruit gardens, our practice is not quite antiquated, and perhaps a little of what might by some be called retrogression would be for our benefit. As to peaches and wall-trees generally, we see them in good gardens superbly managed, and on the fan-shaped system of training and its few modifications, the trees are, in a majority of instances, in perfect health, and in favourable seasons, abundantly fruitful. We have two special enemies to contend with—the late frosts that destroy the embryo fruit or nip the blossom in the bud, and the dull, damp weather commonly prevailing in autumn, which interferes materially with the perfect ripening of the wood. *The antidote to these two evils is to be found in the more general employment of glass.* First-rate grapes and peaches can only be obtained, except in highly-favoured districts, with the aid of some kind of shelter, whether in the form of a glass-covered wall, a spacious and well-fitted house, or the more humble but highly useful “ground vinery.” It is quite certain that the judicious use of glass in fruit culture will always quickly repay its cost, both in the greater certainty and quantity as well as in the superior



quality of the produce. We save thereby the tender crop from destruction by frost and wet when the trees are in bloom, we obtain increased heat for the ripening of the fruit, and the growth of the season is more perfectly matured. No one expects a dish of Black Hamburgh grapes or Walburton Admirable peaches worth a place on a good table without the help of glass. Even strawberries, the hardiest of our choice fruits, and lovers of the fresh air, are the better for the shelter of glass in a cold season.

But we can scarcely help saying that, in many instances, and with, of course, the best intentions, glass has been abused. The orchard-house, with its potted trees, is a charming affair when well managed, and the trees will give as much fruit as would fill the pots they are grown in; but it is a manifest delusion to suppose that the produce is ever equivalent to the actual value of the labour expended in securing it. If skill and labour have to be paid for at average rates, potted trees make too much work for the return they give, and we go back to the old and sound system of planting out in borders as the one to be trusted for profitable ends. In the first instance, fewer trees are required, at every step there is less work, and the trees, having more vigour of growth, are less infested with vermin, less tortured by disease, and the crop puts to shame that of the best collection of potted trees occupying a similar extent of glass. A well-shaped and freely-fruited pot-tree is a beautiful object, of which its possessor may well be proud; but the man who keeps a ledger, and desires fruit at no higher price than its actual cost in outlay and labour, will be cautious how he deals with these pretty toys, and will prefer to accommodate Nature rather than engage in a constant warfare with her. All restrictions of the head and root, no matter what the subject may be, is a form of warfare; and in the case of fruit trees, restriction must increase the cares of the cultivator, and lessen the chances of success.

But restriction is not alone practised in the cultivation of fruit-trees in pots. We see it everywhere in operation as the orthodox method of cultivating the grape-vine, and the complaints of shanking, bad colouring, and other ailments, which reach horticultural advisers in extravagant abundance, invariably occur in connection with restricted vines. The great vines, which have a large house devoted to them, are never in need of doctors; they spread abroad as Nature designed the vine to spread, and though subjected to artificial treatment, and rooted in a soil many degrees colder than the vine is accustomed to in its native habitats, their vigour is ever in excess of the influences tending to their injury, and a state of health and productiveness is normal to them.

What is true of the grape-vine is true of other trees. As in the case of potted trees and single-rod vines, single-cordon and bush apple and pear-trees, are useful things. They grow very little, and produce, in comparison with the space they occupy, very fair supplies of good fruit. But if our supplies of home-grown fruit are defective, these miniature trees will not supply the deficiency. They belong to the land of toys, and their advocacy as profitable fruit-producers has been overdone. Let us hope, however, that healthy trees ou

free stocks—trees possessed of vigour and long-lasting properties—will be looked to for profitable results rather than such as are chiefly interesting because of the excessive trouble they occasion, and their general adaptiveness for planting in the front of a doll's house.

S. H.

## HUNTING FOR BEDDING PLANTS.

BY JOHN WALSH.



SOME bedding plants are so much affected by peculiarities of soil and situation, that it is essential to see them abroad as well as at home, before pronouncing a decided opinion on their merits. So strongly am I convinced of the importance of this, that I annually make a tour of the public parks, in the neighbourhood of the metropolis, where the bedding arrangements are on a large scale, and also of those nurseries in which the bedders form an important part of the trade. By doing this, and comparing the notes made in my rambles with those made in my own garden, I am well able to speak with confidence of the value of novelties, or the adaptability of old favourites for special purposes.

Before passing on to an enumeration of the most desirable bedders for propagating in quantities for next year's display, I would strongly advise those who have not done so, and are interested in floricultural pursuits, to visit the London parks with as little delay as possible. The parks in which the bedding arrangements are on an extensive scale, and in the best possible taste, are Hyde, Victoria, and Battersea, and they are here placed in somewhat of a proper order of merit. The bedding display in the first-mentioned park is really grand; the series of beds extending by the side of Park Lane, from the Marble Arch to Hyde Park Corner, are simply grand, and afford the best possible example of the manner in which flower-beds should be kept during the summer season. They are not only filled with a due regard to the artistic blending of the colours, and quite solid with bloom, or, as the case may be, most richly coloured with leaf plants, but they are most tastefully kept, not a leaf nor a flower being out of its proper place, or a dead leaf or unsightly flower-truss perceptible anywhere. It occasions no small amount of work to keep the beds in the same perfect order as these, but on the principle of "What is worth doing, is worth doing well," the beds should either have the necessary attention, or be turfed over and blotted out of existence.

The planting in front of the ivy-covered house, not far from the bridge by which the Serpentine is crossed, is extremely rich, as also is the bedding in front of Kensington Palace.

The bedding in Victoria Park is also extremely good, the principal points of interest being near Shore Place, Shore Gate, and by the side of the lake, and by the side of the road running from the Crown to the Royal Hotels.

Flowering and leaf plants are well balanced, and employed in a manner which would quite startle many of our country readers. The principal points of interest in Battersea Park are the arrangements near the refreshment-house by the side of the river, and in the sub-tropical garden. The nurseries near London in which bedding plants may be seen in perfection are the nurseries of Messrs. J. Carter & Co., Forest Hill, S.E.; Mr. H. Cannell, at Woolwich, in which the geraniums are especially good; Messrs. E. G. Henderson & Sons, Wellington Road, St. John's Wood; and Mr. Fraser's, Lea Bridge. The parks are of course open free, but no one would think of occupying the time of trade-growers in inspecting their collections without taking care that they should be repaid.

The Geraniums will, I understand, be dealt with elsewhere, and, as the new bedders were described in the August number of the FLORAL WORLD, I shall proceed briefly to comment on the best of miscellaneous bedders which have been in commerce for some years.

Amongst flowering plants *Ageratums* have done exceedingly well, and the best for all purposes is *Imperial Dwarf*, which under ordinary circumstances attains a height of nine inches, and blooms continuously and profusely throughout the season. To insure its flowering early, the cuttings should be struck early in the autumn, as spring-struck cuttings do not commence to flower until some time after they have been planted out. It is the best and most constant of light blue bedders.

The best of the bedding *Verbenas* are—*Crimson King*, scarlet; *Nemesis*, deep crimson; *Basilisk*, brilliant scarlet; *Oxonian*, purplish blue, very fine, the flowers large, and the plant neat and vigorous; *La Grande Boule de Neige*, pure white; *Blondin*, magenta; *Polly Perkins*, magenta.

In Battersea Park, *Bouvardia Vreelandi*, pure white, and *B. angustifolia*, scarlet, have been used with good effect. I also have them bedded out, and towards the end of the month shall lift them carefully, pot them, and place in a cucumber-house which I use as a stove for wintering coleus and other things requiring more heat than the greenhouse and pits afford. They will then continue in bloom for a considerable period.

In some places *Calceolarias* have not done well, owing most probably to the soil being poor and not stirred deep enough. The best of the bedding varieties are *Golden Fleece*, yellow, dwarf; *Golden Gem*, yellow, rather long flower-stalks; *Crimson Queen*, crimson, medium growth; *Mrs. Paul*, velvety maroon; and *Prince of Orange*, brownish orange. *Aurea floribunda* is one of the best when it does well, but as it is so unreliable I have discarded it.

I have had a few fine beds of *Lantanas*, and as they have been solid with bloom throughout the season, they have been most effective. The best I am yet acquainted with here and elsewhere are—*Ne Plus Ultra*, *Raphael*, *Imperatrice Eugenie*, *Mons. Rougere Chauviere*, and *Lutea grandiflora*. *Lantanas* should not be planted too extensively, one or two beds being quite sufficient for a medium-sized garden.

This year I had a very extensive collection of bedding *Lobelias*,

September.

and from it I have selected the undermentioned as being decidedly the best: namely, *Blue King*, light blue; *Brilliant*, deep blue; *Mazarine Gem*, bright blue; and *Speciosa* (a fine stock from cuttings), of the type represented by the latter; *Alba cœrulea*, light blue; *White Pearl*, white; and *Pumila grandiflora*, blue, belonging to the *Pumila* section, and from those intermediate in growth between the two classes, I have selected the following:—*Compacta alba*, white; *Imperial*, dark blue; *Omen*, purplish lilac; and *Purple Prince*, purple. All the above-mentioned may not be required in any one garden, but they are all good and can be selected according to the colour and character of the plant required. It is, however, preferable to grow several varieties, as it enhances the interest attached to the garden.

The *Violas* do not continue in bloom throughout the season unless the situation and weather are especially favourable to their growth. They are, however, exceedingly good during the early part of the season, and when planted alternately with silvery variegated *geraniums* most charming effects are produced, and if the *violas* cease to bloom freely towards the end of the summer, it is of not much consequence. The best of the series is Cannell's *Queen Victoria*, *Perfection*, *Enchantress*, *Magnificent*, and *Lutea Major*. These should be propagated now, and wintered in a cold frame.

The best of the *Heliotropiums* for bedding still continue to be *Mrs. Lewington*, *Miss Nightingale*, and *Jersey Beauty*.

The best of the leaf plants with silvery foliage are *Centaurea ragusina*, *Cerastium tomentosum*, *Echeveria secunda glauca*, *Veronica incana*. The most useful of the golden-leaved plants are the *Golden Chickweed*, *Golden Feather*, *Mesembryanthemum cordifolium variegatum*, *Coprosma Baueriana variegata*, and the *Golden Thyme*.

The best dark-leaved bedders are *Alternanthera magnifica*, *Coleus Verschaffelti*, *C. Verschaffelti splendens*, *Amaranthus melancholicus ruber*; and for large borders, *Perilla nankinensis*.

## SPECIMEN PELARGONIUMS.

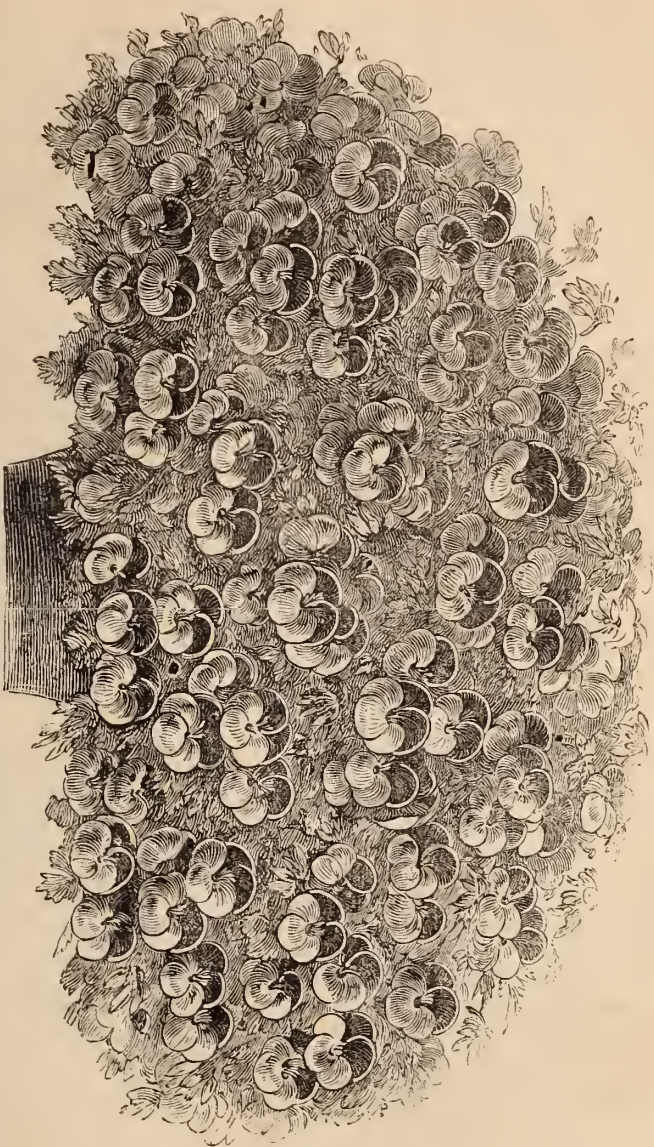
BY CHARLES TURNER,

Royal Nurseries, Slough.



IN speaking of the cultivation of specimen pelargoniums of the show class, in which, as the majority of your readers are well aware, I have been engaged for many years past, it will be well to make it understood that large specimens are not required for ordinary decorative purposes. There is, of course, no objection to the employment of large specimens in the embellishment of the conservatory, and, no doubt, many amateurs would find a considerable source of pleasure in their production, and in showing their friends the results of their skill in plant-growing. For exhibition purposes, specimen plants





SPECIMEN SHOW PELARGONIUM. (From Mr. C. Turner's Collection.)

are imperatively necessary to place the exhibitor at the head of the prize-list.

To produce large well-flowered specimens, of the character and size of that represented in the illustration, which is a good portrait of one of the many large specimens we have exhibited at the principal exhibitions in London and the provinces during the last twenty years, a period of three years will be required. When they arrive at this stage they may be maintained in good condition during a period extending from three to ten years, according to the skill of the cultivator and the constitution of the variety. Fancy varieties cannot be kept in a flourishing state for so long a time, but even these differ considerably in this respect. The current month is most favourable for making a commencement.

As they can now be propagated to any extent, and strong plants may also be purchased, those who take them in hand for the first time should purchase well-established plants in three or five inch pots, and if they have not been already pruned, cut them down to within about three joints of the base of each of the young shoots; or, if they are only furnished with one stem, to within about three inches of the surface of the soil. Provided the wood has been properly matured previously, and the plants sprinkled overhead occasionally, they will soon commence to make new growth. As soon as the young shoots are about an inch in length, turn the plants out of the pots, remove the greater portion of the soil, and after pruning the roots moderately, return them to pots of the same size, and, of course, use a fresh compost, and this should consist of mellow turfy loam, enriched moderately with leaf-mould and thoroughly decayed manure. The drainage must be good, and the soil pressed rather firm. Until the end of September the plants may be allowed to remain in the open air, and supplied with water as required until the end of September, but it is preferable to place them upon a bed of coal ashes in a cold frame, and to leave them uncovered, excepting in wet or otherwise unfavourable weather. After the end of the above-mentioned month, the greenhouse stage will be the best position for them. When newly potted they will require a moderate amount of water overhead, and afterwards sufficient at the roots to keep the soil in a nice moist state. During the winter the foliage must be kept perfectly dry, and very little water at the roots will suffice to keep the plants in health. In the spring of the second year the plants will require shifting into pots one or two sizes larger, and the young growth stopped when between two and three inches in length. As they become established increase the supply of water, and commence as soon as necessary to tie out the young shoots to form as it were the framework of the specimen. This can be done by inserting a few short stakes round the pot, and then tying the shoots down to it if the plants appear to be thin. After the shoots have been stopped and commence to grow freely again, they may be stopped again, as it is a matter of prime importance to secure a bushy growth from the first.

As they go out of flower in the summer, place them out of doors on a dry hard bottom, and water sparingly, to promote the thorough

maturation of the wood. In some cases it will be desirable to screen them from the sun during the middle of the day, to prevent the heat scorching them up. This is especially necessary when there is no alternative but to remove them from the shady conservatory or plant-house to the open air. The wood will assume a deep brown colour when well ripened, and the plants should be pruned without further delay, and repotted when they commence to make new growth, in the manner already described.

The following year it will be necessary to stop the shoots in the spring, and to commence a regular system of training to insure well-developed specimens. Very frequently wire hoops are employed, but stakes alone are preferable. After a little practice there will not be much difficulty in training out the shoots in a satisfactory manner. To enter into details upon this point would require more space than, I feel assured, can well be spared—moreover, there would be a difficulty in making oneself understood. The surface of the plant should, when fully grown and in bloom, present the appearance of an ordinary watch-glass, as here portrayed.

In conclusion, it is desirable to state that the plants must at all times be grown in a light and airy house near the glass, for the purpose of maintaining a firm, short-jointed growth. It is also equally important to keep the foliage free from green-fly, which can be readily done by fumigating the plants as soon as the fly makes its appearance.

## ON THE CONSTRUCTION OF PLANT AND FRUIT HOUSES.

BY A KENTISH GARDENER.



PERSONS who contemplate building glass-houses for the cultivation of fruits or plants should well mature their plans before commencing, so that no expensive alterations may be required, either as the work proceeds, or after the houses have been erected. As a large number of amateurs who have horticultural structures erected in their gardens have but little practical knowledge of the matter, and have not the assistance of an experienced man to advise them, I have thought that a few remarks just now would be of considerable service. There can be no doubt that the first and most important point to consider is, the purpose for which the house is to be erected. This point is only imperfectly considered by many, for, as taste differs in most of us, so also are we subject to prejudices, which exercise a certain amount of influence against this or that particular form of house. A certain amount of taste in arranging a house or any number of houses is desirable, providing the essential features of the design are consistent with the purpose for which the structure is required. But taste in these matters ought always to give way to a reasonable extent when the outlay is ultimately expected to



yield its quota of return. This is referring to those cases where position makes it difficult to combine utility and beauty together; but it does not bear on any instances where both can work harmoniously together, as is sometimes the case. As a rule, give the preference to the form that combines elegance and utility, where no other considerations crop up; for although a house may be handsome in appearance, and useful so far as its form is concerned, yet we have to take into account the probable cost of the working of such a form, according to the uses to which it is to be applied. For instance, no one would prefer a brick-pit to a span-roofed house for pine-growing, if they could maintain the proper temperature in the last-mentioned structure with the same outlay: but the latter would take nearly double the amount of firing to maintain the same temperature as would a brick-pit; hence the preference for it. The same kind of reasoning will apply to the case of those who are engaged in growing large specimen plants for exhibition. The skilful cultivator of these things always gives the preference to a span-roofed house, on account of the more equal distribution of light to all parts of the plants, whereas a lean-to house always presents one dark side to the plants. This, then, shows us that, although a certain amount of taste in arranging horticultural structures is desirable, utility of purpose and a becoming degree of economy in working them must be the paramount object sought. From my own experience, I know it is no trifling matter to decide in all cases which would be the best form to adopt. But, nevertheless, there are certain established forms of houses, adapted for different purposes, that it would not be desirable to alter if we could—such, for instance, as the lean-to form for early vineries, and the span-roofed form for ordinary plant-growing; but still I would, when it was possible, substitute the latter for the former, especially for the fruit-house, the stove, and the orchid-house. But then, against the span-roof, for the two latter purposes, we must place the question of firing. Where this is a question of no moment, then I would advise by all means to build span-roofed houses, and I am satisfied that the result would be most satisfactory. The question of heating plant and fruit-houses is of great importance, now fuel is so expensive, and I prefer to deal with the most weighty matters first; the additional outlay for them in building at the outset is a point of comparatively small importance, when we take into consideration the expense of maintaining the proper temperature.

The advantages of span-roofed houses for all kinds of plant-growing are very considerable, although they are not so clearly made out upon paper as when put into practice. In addition to the more equal distribution of light over all parts of the house, there is a better means of securing a proper current of air; and when we consider how essential these two elements are to success in plant-growing, we have an indication of the superiority of the span over the other form; and those who are aiming to achieve grand results would do well to study the comparative value of the two forms as adapted to their own case. Granting, then, that the span-roofed form is the most suitable for plant-growing, the next question that presents itself is the



size of the structure. In this there are two extremes, and the amateur generally prefers large and lofty houses, while the commercial cultivator is much less pretentious in this matter. To grow plants well, *you must keep them near the glass*, which is impossible in lofty structures. These remarks, it must be understood, are not applicable to conservatories or show-houses; I simply mean houses for *plant-growing*, not for showing. That there is urgent need for improvement in the forms of plant and fruit houses in the present day, I have only to point out the many very valuable additions to our lists of beautiful and costly plants during the last twenty years—plants that really require all the light and the most suitable appliances that it is possible we can give them in this cloudy climate. It is impossible to bring many of them to any degree of perfection in dark lofty houses. It is therefore a subject for serious consideration, because to grow in a satisfactory manner a well-assorted collection of the fine-foliage plants which are now so much prized is impossible when the plants are some six to ten feet from the glass, as very few of them will bring out their colours well if more than two or three feet from it. The rule varies, of course, according to the size and nature of the plants. For the present purpose it is sufficient to establish the understanding that there is little colour produced where there is a defect of light.

Take, for example, the fine-foliage plants which are so universally grown. The best of them require a high degree of temperature, which must be maintained in this country by artificial means for the greater part of the year, and a moment's consideration will show that it is adding considerably to the cost of cultivating them if we have a much larger space of air to heat than the plants actually require. It may be taken for granted that, if there are five or six hundred cubic feet of air to heat over and above the space they actually occupy, there is an absolute waste of fuel, to say nothing of the evil tendencies of so much space above them, which tends to weaken the light. This is not all. If the plants are to be shown off to advantage, and the individual beauties of each to be seen with ease and comfort, they must not stand up eight or ten feet away from the walk which is supposed to enable the visitor to see them. And again, lofty houses have a tendency to make the plants look dwarf and poor. These are not all the arguments I could advance in favour of moderate-sized houses as compared with large ones; but enough has been said to show in the most unmistakable manner that my arguments are not valueless. I therefore hope they may prove of service; for depend upon it we should hear less of the attacks of insects, and drawn and weakly plants, if the stove-plants generally in this country were more bountifully supplied with light, for in many instances the degree of light is not equal to the temperature, and the consequence is that in many cases the organs of the plants are weak and imperfectly matured.

The state of things thus briefly touched upon must remain while the lean-to structures for plants are in use. My idea of a house for stove and greenhouse plants would lead me to choose a neat and substantial span-roof, fourteen feet wide inside measure, with a

raised platform in the centre, and a two and a-half feet shelf round the sides and ends. It is of more importance to have neat and rather low houses for the cultivation of greenhouse plants than for those requiring stove temperature, as it is practically impossible to insure firm short-jointed wood when the plants are far removed from the glass.

The apex of the roof should be nine feet high, with a sunk walk to allow for head-room, and I would have sashes to the two sides fifteen inches deep, resting on a nine-inch brick wall, and the north end should be bricked up to the apex of the roof. The other end to have a brick wall three feet above ground, except under the centre, where the doors would be, and the space above glazed.

The span-roof is also much the best form for orchard-houses; but, to insure successful results, they require to be from eighteen to twenty feet wide, and, if twice or thrice that length, so much the better, as the larger they are they are less liable to be influenced by change of weather, and maintain a more equal temperature inside. Let those, therefore, who are interested in this matter turn their attention to it, that the requirements of the subjects we now cultivate have their due share of consideration. It is not enough to know that they have merely a glass structure to grow in, for if we would see them comfortably housed and cared for, it must be suitably constructed, so that they may enjoy the full benefit of air, heat, and light, according to their requirements, to insure their health and prosperity.

In the case of forcing-houses, lean-to's are the best, provided they have a south aspect. The proper temperature may be maintained in them during severe weather with less difficulty and cost than in any other form. The foliage also will be more fully exposed to the light, and the greatest advantages possible will be derived from the sun at a season of the year when every ray is of value. The vineries and peach-houses in which the earliest crops are brought to maturity should be ten or twelve feet high at the back, about three feet high in front, and about ten feet in width. Houses for strawberries or cucumbers should be about eight feet in height, and the same in width. It is not, however, of much importance to have lean-to strawberry and cucumber houses. Indeed, I should advise their being, in all cases, of the span-roof form. The most useful houses for the above-mentioned subjects, as well as for the cultivation of dwarf-growing plants, such as pelargoniums, primulas, and cyclamens for the conservatory are those ten feet in width, and seven feet in height at the apex, and about four feet in height at the sides. It is desirable in many cases to sink the houses two or three feet below the general level, as the temperature can be maintained more steadily and with less expense than when they are fully exposed to the weather.

The question of heating would take up too much space, were it to be dealt with fully, and I will content myself with saying that forcing-houses should have sufficient piping fixed in them to admit of the temperature being maintained without having to drive the boiler too severely. Orchard-houses and greenhouses may be heated

most satisfactorily with an ordinary flue. Too much importance is attached now-a-days to heating by hot water, for we frequently see expensive apparatuses erected, when a simple brick flue would do just as well.

### PELARGONIUM HARRY KING.



THIS splendid zonal pelargonium may be considered one of the finest varieties with scarlet flowers yet introduced for pot culture. The flowers are of very large size and the finest form, and produced throughout the season in huge globular trusses. In the latter respect it differs materially from the other varieties with well-formed



PELARGONIUM HARRY KING.

flowers, for usually those with flowers of the finest form produce trusses of a very small size. The colour of the flowers is a very

September.



deep and brilliant scarlet, and therefore most effective. The plant is rather long-jointed, but its other good qualities quite atone for this trifling defect, and it may be recommended as one of the finest of its class, and well worthy of general cultivation. It was one of a series distributed for the first time by Mr. H. Cannell, of Woolwich, in the spring of last year, and the accompanying illustration was taken from a truss produced in his nursery.

## THE IDLE MAN'S CONSERVATORY.

BY T. WILLIAMS,

Garden Superintendent, Crystal Palace, Sydenham.



**S**UCCULENT and hard-leaved plants are especially deserving of the attention of business men, who are usually away from home all day, for they require but little attention to keep them in good trim, and they do not suffer materially in health if forgotten for a few days. They also possess a very interesting and attractive appearance throughout the whole year, and by those who have a collection they are much appreciated during the winter season. It will be thus seen how much better adapted they are for small gardens, where the proprietor is seldom at home, and no regular gardener employed, than the usual stock of soft-wooded plants, which require unremitting attention, and, unless they have it, quickly become infested with green-fly, red-spider, and other plant pests, and ultimately perish. With a stock of succulents, the proprietor of the conservatory will always have something to admire, and be able to leave home without having any occasion for fearing that any individual in the collection will suffer for the want of water, or any other attention, whilst he is necessarily absent. The fact of being able to cultivate a moderate collection in the glass cases attached to suburban villas, which are usually designated conservatories by the builders, is a great point in their favour. In these little structures it is, even with the greatest care and attention, extremely difficult to grow geraniums, fuchsias, and other soft-wooded plants, with any degree of success; but they are just the place for the agaves and other succulents, as they will thrive in a temperature sufficient to roast more tender subjects.

One of the principal matters to consider is the selection of the most distinct and ornamental kinds suitable for the formation of a small collection. Indeed, with the purchase of the plants all difficulties are made an end of, for they are most easily managed. Amongst the Agaves are some very ornamental subjects. *A. Americana*, *A. a. variegata*, and *A. a. medio picta*, are bold and handsome in appearance, and can be highly recommended. *A. Celiciana*, *A. coccinea*, *A. Salmiana*, and *A. Schidigera*, are of medium size; and *A. applanata*, *A. Besseriiana candida*, *A. filifera variegata*, *A. macrodontha*, and *A. Verschaffelti*, are of small growth, and form neat



specimens about a foot in height. A few of the Aloes are desirable; the best for a small collection being *A. glauca*, *A. mitraformis*, and *A. rubro-cincta*.

The Beaucarneas are of comparatively tall growth, with gracefully drooping leaves. In some respects they may be likened to a slender-growing, green-leaved *Dracæna*, excepting that the leaves droop in a very graceful manner. *B. glauca* and *B. recurvata* are both good, but the latter is the most desirable of the two. *Bona-partea juncea* is another very elegant-growing subject, with deep green leaves.

Several of the free-growing Cactus are desirable, for they have a distinct appearance, and the majority bloom very freely. They differ considerably in character, and the most distinct and desirable are—*Cereus azureus*, *C. Dr. André*, *C. eburneus*, *C. flagelliformis*, *C. grandiflorus* (commonly known as the night-blooming Cactus), *C. McDonaldi*, *C. peruvianus*, *C. Schotti*, *C. speciosissimus*, and *C. Victoria*. *Cotyledon Hookeri* and *C. marginatum* are both distinct and good. *Crassula Cooperi*, *C. ericoides*, *C. lactea*, *C. perfoliata*, and *C. verticillata* present us with a distinct type of vegetation, and are very desirable in collections.

Echeverias are most useful, and, from the large number in cultivation, I have selected the undermentioned as being the best, namely, *E. atropurpurea*, *E. Californica*, *E. macrophylla*, *E. metallica*, *E. metallica glauca*, *E. navicularis*, *E. pubescens*, *E. pulverulenta*, very beautiful, but rather scarce and expensive, *E. retusa*, *E. retusa major*, *E. retusa splendens*. *Retusa* and its varieties are all valuable for flowering in early spring. *Euphorbia splendens* is useful for training up pillars and walls. The *Kalosanthes* bloom most profusely with ordinary management. The most showy are—*K. coccinea superba*, *K. Madame Celeste Wynans*, and *K. Otto Deines*, all of which have richly-coloured flowers. *Kleinia repens* is interesting and ornamental.

The Mesembryanthemums are remarkable for the peculiarities of their growth and their showy flowers. The most useful are—*M. blandum*, *M. coccineum*, *M. cordifolium variegatum* (useful for baskets), *M. formosum*, *M. polyanthum*, and *M. tigrinum*. *Mamillaria elongata* is very striking in appearance, and in every way desirable.

The Optunias are valuable for the variety they afford, and a few should be grown. The most distinct are—*O. clavarioides*, *O. cylindrica*, *O. imbricata*, *O. Rafinesquiana*, *O. tunicata*; *Pachyphiton bracteosum* is very beautiful, and should be in every collection.

A few of the Sedums are useful, especially *S. Sieboldi*, *S. Sieboldi variegata*, and *S. spectabilis purpureum*. *Rochea falcata* is very interesting in appearance at all times, but when in bloom in the autumn it is exceedingly beautiful. The Sempervivums, which can be the most strongly recommended, are—*S. azoideum variegatum*, a neat, small grower, forming miniature trees. *S. arboreum*, a tall grower, forming bushes several feet in height. *S. arboreum variegatum*, a beautifully variegated variety of the preceding, which should be one of the first to be purchased. *S. arboreum atropurpureum* has dark purplish leaves when the plants are fully exposed

to the light. *S. canariense*, *S. Donckelaari*, *S. palma*, *S. tabulaeforme*, and *S. velutinum*, have massive leaves, and are remarkably striking in appearance.

The Yuccas are all very bold and handsome, the most valuable for growing under glass being *Y. albo-spica*, *Y. aloifolia*, *Y. aloifolia variegata*, *Y. filamentosa variegata*, *Y. filifera*.

It is necessary to state that in commencing the culture of succulent plants a considerable amount of patience is necessary. They are all of slow growth, and as it will be some years before the house will be well furnished, unless more are purchased than is really necessary, a few other subjects which consort well with them should be added. One of the most useful of these is *Agapanthus umbellatus*, which, whether in and out of flower, is very ornamental. Then there are the free-growing Cannas, of which at least twelve varieties should be grown, for they require but little attention, provided the pots are stood in saucers of water. A few small-growing Palms, such as *Chamærops humilis*, *C. excelsa*, and *S. Fortunei* may also be added with advantage.

All the succulents thrive amazingly in a compost consisting of turfy loam, with which liberal quantities of small crocks, sand, and old bricks broken up very small, have been incorporated. The plants will not require repotting more frequently than once every two or three years, and then an experienced man from a nursery may be obtained, at a trifling expense, to do the work. It is necessary to have the pots properly drained, and to water carefully. During the summer season the soil should be kept in a nice moist condition, but during the winter it will require to be kept rather dry.

## CAMELLIAS IN AUTUMN AND WINTER.

BY JAMES CALVERT.



**B**ELIEVING in the value of a word in season, I have ventured to contribute a few notes on the management of Camellias during the autumn and winter. In doing so, I have alluded as briefly as possible to the several points demanding most attention at the hands of the cultivator.

In commencing, I would observe that those who are so favourably situated as not to be obliged to place their plants out in the open air during summer, will have nothing more than the ordinary routine of watering and air-giving to think of in connection with them at this season of the year. But with those who have not the desired convenience to give them summer quarters under glass, the case is very different, as, being under the necessity of placing them in some sheltered place out of doors, the time is now come when they must be thinking of their removal to more secure and favourable quarters. As this part of the management of plants so treated

requires some care, it will, I think, be advisable to state briefly the points that should be attended to in the work of housing them.

In the first place, unless the pots have stood very evenly upon some smooth hard surface, it is more than probable that some worms have collected in them, and, in every case where there is a doubt about it, means should be adopted to free the soil in the pots of these intruders. The simplest, and therefore the best means of doing this is to dissolve a peck of fresh lime in about twelve gallons of water. Let this stand until the water becomes clear, when it may be used with perfect safety; each plant should be thoroughly moistened with this clear lime-water, which will soon bring the worms to the surface, when, as they come up, they must be removed.

The next point of importance in connection with housing these plants for the winter is to see that they are not taken into the house with their roots suffering for the want of water. It sometimes happens in dry autumns, when the plants have been standing in sheltered situations, that they become very dry at the roots. In this case ordinary waterings are not sufficient to thoroughly moisten the whole ball of earth, and this is especially the case with large plants standing in tubs and large pots. Many persons seem to forget that when such plants are thickly studded with branches and luxuriant leaves that extend far over the dimensions of the pots or tubs, that an ordinary shower of rain does not find its way to the roots of the plants, on account of the leaves and branches which extend beyond the pot, and carry it over the point to which the tub or pot extends.

Many times I have seen plants suffering for the want of water under similar circumstances, when those whose duty it was to see that they were properly attended to, thought that sufficient rain had fallen to well water them. Indeed, I cannot too strongly urge upon the cultivator the importance of giving proper attention to this matter, when taking his plants into the house for the winter. As to the time of attending to it, it does not matter whether it is done immediately before or after they are taken indoors, but they ought not to be allowed to go unattended to many days after they are put in their winter quarters. With very large plants in tubs or large pots, more care is necessary, as the watering will have to be repeated for two or three successive days, if they are very dry. But with smaller plants the work may be done at once, by placing the pot in a tub of water, and allowing it to remain there two or three minutes.

The next important matter is to see that they are not subjected to any great change, or it may be the means of causing them to cast their buds. It would be bad management, directly they are taken into the house, to keep them shut up close and warm; there should be a current of air kept up through the house night and day for at least a week. The next week the house should be open all the time there is daylight, as any coddling at this stage will be liable to prove an injury to the plants.

Every *Camellia*, whether in the north or south of England, should be housed by the end of September, as the drenching rains

we sometimes have about that time are very hurtful to them, if accompanied with a low temperature; and when we get October here, we are never secure from a few degrees of frost. The after management will be to give water liberally to those most forward in blooming, to assist them in swelling their buds; those which do not show an inclination to flower until the spring, must have water more sparingly. Keep the syringe or garden-engine plied freely amongst those that are not in flower at least twice a-week, as a fine glossy foliage is not only more healthy, but more sightly than leaves covered with smut and dirt.

## WINTER-FLOWERING CARNATIONS.

BY THOMAS TRUSSLER, EDMONTON, N.



THE tree or perpetual flowering Carnations are rather more difficult to manage than a few other things, but their flowers are so useful during the winter season, that a few should be grown wherever proper accommodation can be provided for them.

For their successful cultivation, a house, the temperature of which is intermediate between that of the greenhouse and plant-stove, is necessary. Sufficient warmth must be afforded them to maintain a steady growth, but they do well in company with the Cyclamens and Bouvardias. In the greenhouse the warmth is not sufficient to maintain a steady growth, and unless they are kept in a progressive state, it will be of little use to expect many flowers, and, moreover, a danger will exist of their being attacked with mildew during the early part of the winter. The plants from which the flowers are to be obtained should be strong and well-rooted by the time they are started, and, if not already done, the strongest plants in five-inch pots should be at once transferred to pots two sizes larger, and placed in a warm sheltered position. Strong plants in three-inch pots may also be repotted. If this is done at once, they will be in good condition for producing an abundance of flowers. They succeed most satisfactorily in mellow turfy loam, broken up moderately, and then incorporated with a liberal proportion of sand and a moderate quantity of decayed manure. It is essential to have the pots well drained, to prevent the soil becoming sour, and the roots injured in consequence.

An open position out-of-doors, with the roots plunged in coal-ashes or some light material, is preferable for the summer quarters; and they should be taken indoors early in the autumn, so as not to expose them too freely to the autumnal rains. When first taken indoors, a light and airy position is the most desirable, and the assistance of artificial heat will not be necessary, until the second or third week in October. After this period the temperature should be maintained at 60° by day and 55° by night.



Carnations are somewhat expensive to purchase, and those who have a few plants, and are desirous of increasing their stock, should strike the cuttings in March or April. In purchasing at this season of the year, strong well-furnished plants must be selected, or they will not produce any flowers until next year.

The undermentioned are the best at present in commerce, which may be obtained at a cheap rate:—*Garibaldi*, purple; *Perfection*, white flaked purple and crimson; *Queen of Whites*, pure white; *La Belle*, the best of the white varieties. *Dragon*, *Jean Bart*, and *Boule de Feu*, are three good scarlet varieties. *Souvenir de la Malmaison*, rosy flesh, is very large and fragrant. *Prince of Orange* and *Ascot Yellow* are two robust-growing and perpetual-flowering picotees, with yellowish flowers edged with red. *White Queen*, white, and *Miss Joliffe*, deep pink, are both first-class, and in every way desirable in the smallest collection. The *Flower of Eden*, white, and *Coccinea*, crimson scarlet, are two fine forcing pinks, which do well in company with the carnations.

### ON STRIKING GERANIUMS.



HUNDREDS of fallacies there are which we must sweep away, but first and foremost let me destroy that dogma which says scarlet geraniums are best propagated in the full sun, without the aid of a drop of water. Geraniums may be propagated that way, and in fact almost any way. The man who would lose one per cent. of geranium cuttings this time of year, no matter by what process he might endeavour to root them, would scarcely deserve to be admitted into any garden, for fear his presence should prove fatal to vegetation. But because you can root geraniums, or because they will of themselves make roots under almost any circumstances, does not prove that mode of propagating to be the best which is most exhaustive of the sap of the stem, and most destructive of the leaves, by means of which alone the cutting must live until it has made roots. That system of propagating is the best which exhausts the cutting least, which by taxing it very slightly allows it to retain a certain portion of its initial vigour until it has made new roots, and is enabled once more to draw nourishment from the earth by a truly natural process. Nor is it true that it matters not how many joints long a cutting is, nor what length of time elapses between making the cutting and the cutting making roots. The more quickly it is rooted the better. If shaded, kept suitably moist, and assisted with a temperature consistent with its nature, any and every kind of cutting, whether of a succulent or an erica, a geranium or a begonia, will do much better, both in making roots and afterwards as a plant, than if put to all sorts of trials, and allowed to make roots, as it were, only by the skin of its teeth. Make all your cuttings of geraniums short; two joints suffice—one joint in the soil, the other joint with its leaf out. Three, four, or five joints make nice plants, and you may, if you please,

September.

root thick ripe rods a foot long; but the short cuttings make the best plants, and to go beyond four joints is to lose ground by taking too long steps. Always shade the cuttings, and sprinkle them frequently, so as to keep them fresh and unexhausted; and as soon as they have begun to grow fairly, place them full in the sun, that they may grow sturdy and healthy from the first. Seeing how quickly geraniums make roots, and how much handsomer the plants grow if they are in separate pots from the first, the best practice for amateurs is to pot each cutting separately in the first instance; and cuttings properly rooted now in 60-sized pots will not want a shift till next March or April, or not at all if for turning out in May, though to have such specimens as I grow they ought always to fill 48-sized pots, with only one crock and a rich compost, at the spring shifting, before they go to their places in the beds and borders.

S. H.

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### THE CULTIVATION OF ASPARAGUS.



ORTICULTURAL writers make it the custom to run in a pack together like so many hounds laid on one scent, and knowing of no other road to reach the game. A fine illustration of this is afforded by the current instructions on the cultivation of asparagus, which are simply the result of successive copyings for a century or two past; each separate writer pretending to give his own experience and the *latest* results of inquiry and observation, while actually copying oft-repeated directions, making no additions of new knowledge, correcting no errors, and giving not a gleam of light from his own individual intelligence. An exception must be made in favour of Mr. Earley, who, indeed, has nothing new to say on the cultivation of asparagus, but has discovered it to be so valuable a vegetable that he would have the poorest cottager devote his attention to it instead of to the "everlasting cabbage and potatoes."

As to the value of asparagus, every one must decide for himself. The man who can make money by growing it for market will justly value it, and do his utmost to grow a fine sample. The amateur who desires to derive from his garden useful additions to his daily diet will do well to think twice before devoting a bed to the production of asparagus. It is an elegant, delicate, wholesome, and delicious vegetable; but it is of the least possible use in the animal economy: its repute as a purifier of the blood and a preventive of rheumatism is founded on a fact of no value; and its repute as a nutritious vegetable is founded on fiction altogether. Its quick and peculiar action on the kidneys tends to no important results, and it contains so few of the elements of nutrition that we should remove it from the category of foods and class it with edible toys and dinner-table curiosities. Let those who love asparagus give their minds to growing it, but let no one be deceived by current notions of its value as *food* or *medicine*, for in the proper sense of those terms it is neither.

The books begin by saying that asparagus needs a very deep, sandy, highly-manured soil; and they follow with elaborate directions, all tending to render this comparatively worthless vegetable one of the most costly that can be taken into or out of the boundaries of a garden. Having grown asparagus of the finest quality and in great abundance under a great variety of circumstances, I am bound to say of the plant that it is the most accommodating in its nature, and needs but a small amount of attention to show the best behaviour and be easily understood. Three things are requisite for the production of good asparagus—a well-drained friable soil, an open sunny situation, periodical top-dressings with common salt. Before attempting to sketch out a code of asparagus culture we will briefly describe recent operations of our own, for “facts are chiefs that winna ding.”

In the spring of 1870 we sowed two rows of asparagus seed in a piece of ground occupied with raspberries, in the fashion of what we call a “stolen crop.” In the spring of 1871 we prepared two beds, each fifty feet in length by six feet wide. The ground was trenched two spits deep, and a heap of sweepings from the poultry-house, saved for the purpose, was spread over and slightly forked in. The earth was then taken out of the alleys adjoining and thrown on the beds, and they were thus roughly reduced to about five feet in width. The plants from the previous year’s sowing were carefully lifted and planted in May in rows one foot apart and the plants one foot asunder in the row, and the beds were then carefully cut to four and a-half feet in width, the crumbs from the alleys being spread over them. The beds were kept clear of weeds, and the asparagus stems were removed in the autumn, and a top-dressing put on of sweepings from the poultry-house, saved for the purpose. In March, 1872, the beds were slightly pricked over with a small fork to loosen the top crust and destroy rising weeds, and then a mixture of fifty-six pounds of salt and an equal bulk of dry earth was spread over their surface. The growth that followed was tremendous, not a weed appeared; in fact, not a weed could have lived with such a growth of asparagus to crush it. In the spring of 1873 another dressing of salt was given, and a still more vigorous growth followed. We began to cut early and left off cutting in the last week of May, taking from the beds an immense supply of fat, green asparagus of the most delicate texture and delicious flavour.

In the autumn of 1873 the plants stood six feet high, making a dense mass of herbage over the bed, and saying, as plainly as they could speak, “We want more room.” Therefore two more beds in another garden were prepared for them. For this purpose a piece of pasture on a heavy, clay-like loam was broken up. The ground was first trenched two spits deep, and a great body of vegetable refuse of the nature of coarse hay—the result of trimming up with scythe and sickle amongst long grass, and such weeds as “fat hen,” etc., etc.—was laid between the two spits. Then fifty barrow-loads of lime and plaster rubbish, mixed with an equal quantity of rotted grass mowings and grit from the rubbish-yard, was spread on the surface. The next thing was to lift and plant. When lifted, the

stools were so large that I could just span across the crowns, mine being a large, agricultural Teutonic hand. They were cut back to about three feet, and carefully planted in rows eighteen inches apart, the plants the same distance in the rows, and so regularly opposite each other as to form rows *across* the bed, for convenience of hoeing, the beds now being six feet wide. On the day of writing this (August 16), the job is just completed, and the hands are busy giving the plants a good watering, after which they will be slightly moulded up with half-rotted grass-mowings and grit from the rubbish yard. There is a great lot of surplus plants left in the old beds: we shall leave them for the present, and in due time lift them for forcing, and when we have taken their succulent shoots, they will be thrown away. In the spring of 1874 we shall have a grand supply of green asparagus as thick as the thumb of the largest-thumbed agricultural labourer. Our mode of growing asparagus, it will be seen, is scarcely more costly than the ordinary growing of parsnips and carrots; and as asparagus is altogether profitless if regarded as food, the less we invest in asparagus-beds the better, provided, of course, that we secure by some means a first-rate sample, for spindling sprays and "screw" rubbish should never be recognized as fit for admission to a Christian household.

Good old garden soil will grow asparagus well with very moderate manuring. Clay is the worst soil for the plant, and rich, well-drained sandy loam the best. It loves sand, and stones, and salt, and alkaline manures; but if the beds be of good texture, deep, well drained, and somewhat sandy, there is no occasion at all for extravagant manuring; therefore, a poor man who loves asparagus may grow it to his heart's content, in spite of the absurdly-elaborate directions of the books. It is a wild weed on the sandy and rocky shores of these islands, and therefore can "pick up a crust" in a comparatively poor country.

To raise a stock of plants, sow seed in March in drills one foot apart, and one inch deep. In the following spring transplant them to the beds, when they are growing freely, taking advantage of showery weather for the operation. Put them out a foot apart every way, unless the ground is particularly well adapted for asparagus, in which case put them eighteen inches asunder every way. In common with all other plants, asparagus will pay for manure and water where these can be provided in plenty, but if either of them are costly articles, the cultivator is advised to make his mind easy and leave his asparagus-beds to take care of themselves to a very great extent. A thin sprinkling of salt may be put on the beds once a month from February to July; but we prefer to use a heavy dressing in March, and a-done with it for the season; and we thus secure crops equal in weight and quality to those of our neighbours, who are always in a fuss and perspiration about asparagus; and, in fact, better every way than is secured by some of them. In fact, the asparagus-plant is overfed and humbugged to almost as great an extent as the grape-vine: we could not hope to say more with a view to obtain for it simple and reasonable treatment. As a rule, the best time to transplant is March and April, and seed-beds



that are to stand for a crop should, at that season, be thinned to a foot apart every way in poor or middling ground, and to fifteen to eighteen inches apart in ground known to produce strong growth. If, however, the time for spring-planting be lost, the plants may be moved with safety from the middle of July to the end of September, and dull, showery weather should be waited for; and the job, when once commenced, should be completed as carefully and quickly as possible.

In any and every case the soil should be deeply trenched and made as light and gritty as the materials available permit. If the situation is damp raise the beds above the level, and always select an open position exposed to the full sunshine, for shade is deadly to asparagus, although shelter not producing shade is beneficial, promoting, what is always desired, an early growth to compete in value with forced asparagus. Never allow the roots to be exposed to the air for any length of time, for they are succulent and thin-skinned, and soon suffer if their juices are drawn from them by evaporation. Hence it is not well to buy shop roots, for the length of time they are necessarily exposed seriously impairs their vigour to the injury of the purchaser. As the plantation is expected to stand for several years, never a foot should go on it except through sheer necessity, for if the ground becomes much consolidated the plant ceases to thrive; hence the importance of deep digging in the first instance and the need for stony and gritty substances in the staple. We have gathered the grandest asparagus ever seen from beds twenty years old; therefore it may be concluded that it will pay to do the work well in the first instance. As to cutting, the rule is to begin in the third year, and that is a good rule for a poor soil; but cutting may begin the second year on a good soil, and it should cease at the end of May in early districts, and at the end of June in late districts. The books say the cutting may be continued into July, and make no allowance for climates. On our fine old garden-ground at Stoke Newington we begin to cut at the end of March and make an end of cutting at the end of May—a run of two months. The plants then have time to make up for losses, but it would seriously impair their vigour if we were to cut until the middle of July. Besides, asparagus becomes a drug in the market when peas and cauliflowers are plentiful, and if the writer may hazard his own private opinion, asparagus is but a lollipop, whereas peas and cauliflowers are like marrow and muscle to repair the waste of the frame in the activities of life. There is yet one point to be decided, and that is the relative value of white and green asparagus. Having discussed the question with several of the first cooks in the land, men who are known by their writings as well as their high appointments, and found them all, to a man, in favour of *white* asparagus, we prefer to leave the question open, for we can only recognize as fit for the table of a rational human being *green* asparagus, and our preference for the green must be, of course, a matter of individual and perhaps vitiated taste. However, it is easy enough to produce either. If you want tough, tasteless, uneatable, white asparagus, put an extra six to twelve inches depth of fine

gritty soil over the crowns, and cut with a proper saw below the surface. If you want tender, juicy, tasty, come-again flavoured green sticks, do not mould the beds more than enough to fairly cover the crowns, let the shoots rise six inches or so above ground, and then cut with a knife level with the surface.

The simplest way to force asparagus is by bringing the heat to them, for then the roots are undisturbed, and will gain in time and size. For this practice the beds should be four feet wide, with two feet alleys between, and the beds selected for forcing should be left uncut in the *preceding* summer, that they may accumulate the strength needed to enable them to endure the trial. The first business is to determine when the first cutting is required, and the later it is wanted the better for the plants and the gardener. If you wish to cut in January, you must commence operations six weeks in advance; if in February, five weeks in advance; if early in March, four weeks in advance. The forcing consists in covering the bed with litter, and then taking a shallow spit from the alleys and throwing it equally over the litter. The alleys are then filled with hot dung, which must be raised to at least one foot above the level of the beds, and when slightly trodden must be covered with boards to shut in the heat and keep out the cold and wet. Finally, the beds should be covered with six inches depth of the same hot dung. In a mild winter the routine may be modified with a view to economy; and, as the season advances, the amount of heating material required to start a bed will become less and less. The produce of beds treated in this way is necessarily white, and, in our opinion, as unfit for eating as blanched rope-yarn; but it is valued by the poor rich people, and it will always pay the gardener to produce it.

A better quality of forced asparagus, less fat, but green, and therefore tender, and with the welcome flavour of a good sample, may be obtained by taking up the plants and forcing them in pits and frames. It is a very simple business. The plants should be taken from beds three or four years old, and planted in light soil on well-made hotbeds, or beds heated by hot-water pipes. A gentle heat suffices, and indeed the slower the forcing the better the produce. As the glass protects the plant from frost, it may enjoy light and air, except when the weather is severe, and therefore need not be much moulded up, the object being to obtain short, plump, dark-green shoots of the most tender and richly-flavoured kind, fit to "set before a king." A large, deep bed of leaves, with a sufficiency of old lights and walls of turf, or loose bricks, or stout boards set on edge with pegs to hold them, afford machinery enough for the production of the finest forced asparagus, provided only there is a strong plantation of some years' standing to begin with for the supply of stools for the purpose. As a matter of course, the gardener who has to provide for a family will take measures to insure a succession, but it would be like teaching such an one his A B C again to enter into details on the subject.

S. H.

## THE GARDEN GUIDE FOR SEPTEMBER.

KITCHEN GARDEN. — Where onions have been cleared off, is generally the best place for cabbages for spring use, because the ground having been well-manured for the onions, is in good heart, and yet, so far relieved of manure by the onions, there will be no fear of a rank growth, such as will cause the plants to suffer from frost. Plant out, as spaces become vacant, first digging deep and leaving the surface rough. The planting, however, must be firm, and damp weather should be chosen for it. It is too late now to sow any more winter greens or onions, and if the stock is short, it will be better to get a supply of plants than waste time and patience in sowing. Thin winter spinach to six inches from plant to plant; thin the rows of lettuce that are to stand the winter: but not severely, because, in the event of severe frosts, the plants protect each other, if somewhat close together; on the same principle, broccoli and cauliflowers left to risk it in the open ground, should be not more than fifteen inches apart each, and the ground for them should not, at this season, be very rich, or they may suffer in severe weather. We generally plant the spring broccoli without manure, and in the spring, as soon as they commence their new growth, give them regular waterings with house sewage, and so secure fine heads; cabbages we treat the same, so as to avoid the necessity of manure in the autumn, which renders them tender in exposed situations. Earth up celery as the rows require it, in dry weather, but if not well grown, give plenty of liquid manure, and postpone the earthing-up till the plants have made good substance. This is the best time to form new beds of horseradish, the crowns to be planted fifteen inches deep, and six inches apart, in very rich and well trenched soil. Continue to sow saladings, and gather seeds as fast as they ripen. Potatoes to be taken up as the tops wither; carrots and beet-root may remain till the frost cuts off the foliage, and no longer, but parsnips may be left in the ground, trenched out as wanted for use, unless the ground is required, in which case, store them in sand.

FLOWER GARDEN. — Plant out pinks and carnations, and rooted cuttings of herbaceous plants. The beds of seedlings must be looked over and thinned, and the thinnings planted in fresh plots of newly-dug, and firmly-trodden ground. This month commences the season for planting bulbs. The first lot of hyacinths and tulips should at once be got into pots, and plunged in coal-ashes, or coarse sand, so as to quite bury them, and keep them only moderately moist, and as much as possible free from the action of the atmosphere, so as to induce a root action before the foliage is produced. Hyacinths may also be planted in beds and borders, but tulips should not be put in the open ground till next month. A very effective way of using hyacinths is to put them in patches of seven, one in the middle and six round it, every separate patch to be of a different colour. Cuttings of bedding-plants may still be taken freely, but there should be no delay, or they may not be well rooted before cold weather sets in. This and next month are the best times for striking

calceolarias. Take off the young shoots from near the bottom of the stool, and put them pretty close together in five-inch pots, well drained, and filled up to near the rim with a mixture of peat, loam, and sand, equal parts, and half an inch of pure sand on the surface. China roses may also be struck now in pots in the greenhouse, and they do safest under hand-glasses. A second bloom, to last till Christmas, may be obtained from fuchsias, by cutting in the young wood, and giving the plants a little heat to start them afresh. Geraniums struck early in the summer, will now be coming into bloom, to keep the greenhouse gay all the winter.

GREENHOUSE.—If any subjects requiring to be repotted have been neglected, there must be no time lost to give them a shift to enable them to make new roots before winter sets in. A border under a south wall is a good place for plants that require to be well roasted before being housed. Bedding plants should be got into small pots as fast as they make good roots in the borders, or can be spared from the decorative grounds, if worth keeping. Petunias, verbenas, and tropæolums come so readily from spring cuttings, and make as good plants as from autumn cuttings, that it is waste of glass to keep any large stock of cuttings through the winter. Keep the houses gay with balsams, cockscombs, fuchsias, lilliums, gladioli, coleus, amaranthus bicolor, heliotropes, and plants with fine foliage. Wherever worm-casts are seen in pots, turn out the balls, and the worms can then be picked out with a stick. Sometimes a dose of manure-water will cause the worms to struggle up to the surface. Plants in conservatory borders, which are now past their best, to be taken up, and, if worth keeping, pot them, and place on bottom-heat for eight or ten days, as they will winter better if the pots are full of roots. Winter-flowering begonias to have a good shift in a compost of turfy loam and leaf-mould. Pot off a lot of bulbs at once for early bloom, and plunge them in coal-ashes, and give very little water. Keep all houses open as much as will be safe; house tender subjects that are likely to suffer from wind and rain. Pot a few bulbs for early bloom. Ornithogalum, Ixia, and Sparaxis force well, and Narcissus bulbocodium will be useful if kept in ordinary greenhouse temperature for early bloom.

STOVE.—Remove shading as much as will be safe, and place subjects that are going to rest in the coolest part of the house. See that all the winter-flowering plants are sufficiently potted, and any that are pot-bound and must not be checked by a shift, mulch with sheep's dung, or assist by means of liquid manure. Plants with ornamental foliage will be useful now that flowers are scarce. In giving water, take care to avoid a chill, and in every case see that the drainage is perfect, as there is time now to repair any small mischief before winter. As the month advances, let the heat of the house decline, and generally use as little fire-heat as possible, especially where the stock consists chiefly of plants that will be at rest all winter. Great care, however, must be taken that soft-leaved plants do not get affected with mildew. A few tropæolums struck now will be useful in the stove for winter blooms.

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## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

SELECTIONS OF BEDDING PLANTS FOR  
1874.

**AGERATUMS.**—Imperial Dwarf (the best), White Imperial Dwarf, Tom Thumb, Mexicanum.

**BOUVARDIAS.**—*Angustifolia*, scarlet; *Vreelandi*, white.

**CALCEOLARIAS.**—*Amplexicaule* (for large beds), *Aurea floribunda*, *Coccinea floribunda*, *Crimson Queen*, *Golden Fleece*, *Golden Gem*, *Mrs. Paul*, *Pillar of Gold*, *Prince of Orange*.

**CANNAS.**—*Annei* discolor, *Bihorelli splendens*, *Chatei discolor*, *Chatei grandis*, *Compæcta*, *Deputé Henon*, *Expansa*, *Henri Vilmorin*, *Jean Sisley*, *Nigricans*, *Picturata fastuosa*, *Purpurea spectabile*, *Warscewiczii*, *Warscewiczii Major*.

**DAHLIAS.**—*Alba floribunda nana*, *Captain Ingram*, *Fireball*, *Gem of the Dwarfs*, *Little Bobby*, *Little Gem*, *Pretty Polly*, *Pluton*, *Prince of Wales*, *Rising Sun*, *White Bedder*.

**FUCHSIAS.**—*White flowers*: *Constellation*, *Lizzie Hexham*, *King of the Doubles*, *Rifleman* (double), *Norfolk Giant*, *First of the Day*, *Tower of London*, and *Mr. Lyndoe*. *Dark flowers*: *Wiltshire Lass*, *Marginata*, *Minnie Banks*, *Prince Alfred*, *Arabella*, *White Perfection*, *Alba coccinea*, *Evening Star*, *Conspicua*, *Emperor of the Fuchsias*, *Vainqueur de Puebla*, and *Mrs. Ballantine*.

**HELIOTROPIS.**—*Azureum*, *Etoile de Marseilles*, *Jersey Beauty*, *La Favorite*, *Miss Nightingale*, *Modèle*, *Surpasse Guascoi*.

**LANTANAS.**—*Adolphe Hwass*, *Colibri*, *Delicatissima*, *Distinction*, *Don Calmet*, *Empereur des Français*, *Fillioni*, *Gloire de Mazarques*, *Louis Rœmpler*, *Madame Bruant*, *Mons. Rougie*, *Roi des Rougés*, *Victoire*.

**LOBELIAS.**—*Speciosa type*: *Blue King*, *Brilliant*, *Cobalt Blue*, *Drusilla*, *Mazarine Gem*, *Speciosa*, *White Perfection*. *Pumila type*: *Alba cœrulea*, *Hebe*, *Pumila grandiflora flore-pleno*, *White Pearl*. *Intermediate type*: *Compacta Alba*, *Imperial*, *Ne Plus Ultra*, *Omen*, *Pink Cornelian*, *Purple Prince*.

**PANSIES.**—*Bedfont Yellow*, *Blue King*, *Cliveden Blue*, *Cliveden Purpie*, *Cliveden Yellow*, *Dean's White Bedder*, *Great Eastern*, *Mrs. Shirley Hibberd*, *Queen of Scots*, *Sandbeck Gem*, *Sunshine*, *Ware's Cloth of Gold*.

**PELARGONIUMS, ZONALS (NOSEGAYS INCLUDED).**—*Scarlet*: *Amabilis*, *Aigburth Beauty*, *Charley Casbon*, *Chunder Sen*, *Cannel's Dwarf*, *Corsair*, *Duke of Edinburgh*, *Flamingo*, *George Miles*, *Jean Sisley*, *Omega*, *Orbiculata*, *Payne's Perpetual*, *Rev. C. P. Peach*, *Shakespeare*, *Star of Fire*, *Velocipede*, *Vesuvius*, *Warrior*. *Orange and Salmon*: *Excellent*, *Hibberd's Orange Nougay*, *Harkaway*, *H. W. Longfellow*, *Scarlet Dwarf*, *Soleil*. *Rose and pink tinted*: *Amarantb*, *Amy Robsart*, *Beauty of Lee*, *Maia*, *Master Christine*, *Feast of Roses*, *Miss Rose Peach*, *Mrs. J. Pottle*, *Mrs. Augusta Miles*. *Crimson and purple tinted*: *Bayard*, *Charles Dickens*, *Crimson King*, *Douglas Pearson*, *Diana*, *David Garrick*, *Geant des Batailles*, *Heartsease*, *Lord Belper*, *Pioneer*, *Lady Kirkland*, *Lady Palmerston*, *Marathon*, *Mrs. Hole*, *Mrs. Mellow*, *Undine*, *Violet Hill Nougay*, *Sparkler*. *Cerise*: *Cherry Lips*, *Lucius*, *Magnet*, *Crystal Palace Gem*, *Troubadour*. *Salmon shades*: *Gloire de Corbeny*, *Gloire de St. Louis*, *Madame Day*, *Sensation*. *White*: *Madame Vaucher*, *White Princess*, *White Wonder*. *Ivy leaf*: *Butterfly*, *Cassidy*, *Favonia*, *Gem of the Season*, *Lady Edith*, *Romance*, *Treasure*.

**GOLDEN ZONALS.**—*Edward Richard Benyon*, *Fair Emily*, *Lady Sheffield*, *Leander*, *Louisa Smith*, *Mrs. Dunnett*, *Mrs. Pollock*, *Miss Batters*, *Peter Greive*, *Prince of Wales*, *Sir Robert Napier*, *Victoria Regina*.

**SILVER ZONALS.**—*Caroline Longfield*, *Eva Fish*, *Italia Unita*, *Lass o' Gowrie*, *Mysterious Knight*, *Silver Flute*.

**BRONZE ZONALS.**—Attraction, Black Douglas, Bronze Queen, Countess of Kellie, Crown Prince, Harold, Imperatrice Eugénie, Mrs. Lowndes, Princess of Wales, Sybil, The Moor, Waltham Bronze.

**GOLDEN-LEAVED.**—Creed's Seedling, Crystal Palace Gem, Golden Banner, Gold Circle, Little Golden Christine, Star of Gold.

**VARIEGATED.**—Avalanche, Bijou, Bridal Bouquet, Flower of Spring, Princess Alexandra, Snowdrop.

**PETUNIAS.**—Ariel, Butterfly, Imperial, King of Crimson, Mont Blanc, Perdita, Miss Earl, Spitfire, Princess Louise.

**TROPÆOLUMS.**—Advancer, Compacta, Coronet, Perfection, Yellow Dwarf, Minnie Warren, The Moor.

**VERBENAS.**—Ariosto Improved, Basilisk, Crimson King, Hercules, Iona, Lavender Queen, Mauve Queen, Maonetti, Melindris splendens, Nemesis, Oxoniau, Polly Perkins, Purple King, White Queen.

**VIOLAS.**—Blue Bell, Corisande, Enchantress, Magnificent, Lothair, Lutea Major, Perfection, Queen Victoria.

**MISCELLANEOUS PLANTS.**—*With dark foliage:* Alternanthera amœna, A. amabilis, A. magnifica, A. paronychioides major, Amaranthus melancholicus ruber, Iresine acuminata, I. Lindenii. *Silvery foliage:* Antennaria tomentosa, Centaurea argentea plumosa, C. Clementei, C. ragusina compacta, Cerastium tomentosum, Dactylis elegantissima, Leucophyton Browni, Veronica incana. *Golden foliage:* Coprosma baueriana variegata, Lonicera reticulata aurea, Mesembryanthemum cordifolium variegatum, Pyrethrum Golden Feathers, Sedum acre elegans, Stellaria graminea aurea, Thymus citriodora marginata aurea, T. The Golden Fleece.

**SUCCULENTS.**—Echeveria pumila, E. metallica, E. metallica glauca, E. secunda glauca, Sempervivum calcaratum, S. Californicum, S. Donckelaari, S. tabulariforme, Sedum glaucum.

## HORTICULTURAL AFFAIRS.



### ROYAL HORTICULTURAL SOCIETY. — EXHIBITION OF PHLOXES,

August 6.—The display of Phloxes in pots was exceedingly good, as Messrs. Downie, Laird, and Laing, of Forest Hill, staged a large group of well-flowered specimens, in addition to the collection for which they received the first prize. Amongst others were good specimens of Madame Domage, blush, with bright carmine centre; Monsieur Domage, white, purplish crimson centre; Mons. Malet, lilac; Bridesmaid, white shaded lilac and deeper centre; Philia Penglase, violet-rose, carmine centre; Lothair, bright salmon-red; Monsieur de Lamy, rosy red with salmon shade; Lilacina, French white; Madame Dombain, blush, purplish centre; Czarina, dwarf white; John Laing, purplish crimson; Marguerite de Turenne, purplish crimson. The only exhibitor of Hydrangeas was Mr. J. Aldous, Gloucester Road, South Kensington, who staged well-grown examples furnished with fine heads of flowers. Mr. Ware sent a group of herbaceous Lobelias, which were not sufficiently in bloom to produce a good effect. Mr. Denning, gardener to Lord Londesborough, exhibited as usual a very fine bank of Orchids, and, amongst others, had a specimen of the lovely Disa grandiflora, with four spikes; Saccolabium Baumei, with twenty spikes of its lovely tinted flowers, and Oncidium macranthum, with seventy-eight of its rich golden flowers. An extra prize was awarded, and a like award was made to Messrs. F. and A. Smith, Dulwich, for a collection of Balsams, representing their fine strain. Messrs. E. G. Henderson and Son, St. John's Wood, were the only exhibitors of Cannas, and were awarded the first prize.

**THE INTERNATIONAL FRUIT SHOW AT MANCHESTER.**—The Right Hon. the Earl of Derby has consented to open the great exhibition of fruit and flowers to be held at Manchester, September 3, 4, 5, and 6. The opening ceremony will take place at twelve o'clock and be most interesting. His Lordship will preside at the banquet to be held in the City Hall, in connection with the exhibition on Wednesday, September 3. The banquet will take place at six p.m. Excepting cut flowers, all the productions must be staged before 8 p.m. of the day previous to

the opening day of the exhibition, and, as the judging will commence early, all exhibitors will have to retire from the exhibition at 7 o'clock on the morning of September 3. This promises to be the grandest affair of its kind ever held in England.

**DEATH OF BOTANISTS.**—The *Journal of Botany* records the death of two British botanists of reputation, namely, Mr. James Ward, of Richmond, Yorkshire, and Mr. James Irvine, of Chelsea.

**EXHIBITION OF FRUIT AT THE CRYSTAL PALACE.**—The Directors of the Crystal Palace intend holding an autumn exhibition of fruit and table decorations on September 6, 8, and 9.

**CURE FOR WASP STINGS.**—The *Abeille Médicale* publishes what it terms "a simple and effectual cure for the sting of wasps, hornets, and bees," communicated to that journal by M. Dauverné. This is nothing more than lime-water, which can be made in almost every country place, where it might not be possible easily to procure spirits of ammonia. So effectual is lime-water in cases of this kind, that M. Dauverné states that on one occasion, when he was attacked by wasps, and severely stung about the head, a single application of it gave him instant and permanent relief. Other trials which M. Dauverné made of it were attended with the same happy results.

**THE DEATH OF MR. J. A. GORDON,** Superintendent of the Crystal Palace Gardens, is announced. In part trained under Sir Joseph Paxton, and afterwards enjoying his confidence, while labouring in association with Mr. Milner in carrying out Sir Joseph's views, Mr. Gordon was well qualified for the arduous labours consequent on the formation and keeping of the beautiful grounds at Sydenham. As to the quality of his performances, whether in forestry or flower-growing, whether in landscape gardening or geometric colouring, the great public have been constantly informed in their visits to the Crystal Palace, for Mr. Gordon's work always constituted one of the principal attractions of that delightful resort. He was also well known as a contributor to the *Gardener's Magazine*, in whose pages many valuable articles by his hand have from time to time appeared. Mr. Gordon left his widow and family unprovided for, and a subscription has been started for their relief. Mr. Gordon's long illness exhausted his resources, which were necessarily small, and he bequeathed a few debts to those he left to mourn for him, and thus their embarrassments are increased. We trust that many of our readers will contribute to the fund, remembering that Mr. Gordon's work was essentially of a public nature, and tended in an important degree to promote the recreations of the people. Contributions may be forwarded to Mr. F. W. Wilson, Crystal Palace, Sydenham.

## TO CORRESPONDENTS.

**RHODODENDRON VENUSTA.**—I beg to correct an error in my letter on "Beautiful Trees at Ashbury," inserted in the August number of the *FLORAL WORLD*. The words "Venuta Rhododendron" are followed by a (?). It should be *Venusta*, a winter-flowering rhododendron of great beauty, the cultivation of which seems somewhat neglected, owing to the blooms being so frequently cut by the frost. It may not be generally known that the *Venusta* possesses one marked peculiarity: if, when frost is anticipated, the buds are gathered with only a tiny portion of colour showing, they will open in water as freely as on the parent stem; and are thus, with a little management, invaluable for bouquets at a season when little else is available in the open air. For "*Indian Azalea*," read "*Indica Azalea*."—*J. H. W.* [We should have altered "Venuta" of the manuscript to "*Venusta*," for we had no doubt at all that the "s" had been accidentally omitted; but we were not aware of the existence of a rhododendron named "*Venusta*," and after referring to several authorities, from Sweet downwards, have found no tidings of it. There may, however, be a garden variety so named, if not a species; and we should be glad of information concerning it, as "*J. H. W.*" describes it as flowering in the winter. The second correction our correspondent makes is unnecessary, for it is quite as proper to say "*Indian Azalea*," as "*Azalea Indica*." We take this opportunity to render our hearty thanks to all the friends who have assisted in illustrating the subject of beautiful trees for kind climates.—*Ed. F. W.*]



CONIFEROUS TREES IN POTS.—*An Amateur*.—The following are all of neat growth, and are highly ornamental when properly grown in pots for plunging in the flower-beds during the winter, and for the embellishment of balconies and fore-courts:—*Abies pygmæa*, a dwarf and compact form of the common Spruce; *A. pyramidalis*, a neat-growing tree, of erect habit; *Cephalotaxus Fortunei*, a very handsome evergreen, of free growth, bearing a close relationship to the Yews; *Cupressus Lawsoniana argentea*, a fine variety, with silvery leafage; *C. Lawsoniana erecta viridis*, a grand, erect-growing form, of a brilliant green hue; *C. Lawsoniana gracilis*, a fine form, of medium growth, and handsome, feathery appearance; *C. Lawsoniana nana*, a pretty, small growing form of this fine conifer; *Juniperus Chinensis*, a very handsome medium-sized tree, of erect growth; *J. Chinensis aurea*, a fine golden form of the preceding, and very rich and effective; *J. hibernica*, a handsome tree, of columnar growth, with greyish leafage, very beautiful; *J. hibernica compressa*, a pretty, compact-growing form of the preceding, and suitable for small pots; *Libocedrus decurrens*, a stroug-growing tree, of a dark green hue, and only suitable for large pots; *Retinospora ericoides*, a neat-growing pyramid tree, of most elegant aspect; *R. filicoides*, a pretty shrub, with flattened branches resembling fern-fronds; *R. filifera*, a neat form, with gracefully pendant branches; *R. lycopodioides*, a fine form, with deep-green imbricated leaves; *R. obtusa compacta*, a dwarf variety, of dense habit, and most effective; *R. obtusa nana*, a dwarf variety, possessing a rather spreading habit; *R. obtusa nana aurea*, a golden form of the preceding, very beautiful and distinct; *R. pisifera plumosa*, very graceful in habit, the branches having a fine feathery appearance; *R. pisifera argentea*, a distinct form, prettily blotched with silver; *R. pisifera aurea*, a grand golden form, retains its rich colouring throughout the year; *R. squarrosa*, a fine tree, of distinct character and handsome appearance; *Sciadopitys verticillata*, a very distinct and handsome Japanese Pine; *Taxus baccata aurea*, a neat-growing variety, with golden foliage; *T. coriacea*, a handsome pyramidal-growing species, with larger leaves than the Irish; *T. elegantissimus*, a fine variety, with silver-striped leaves, and a good companion to the preceding; *T. erecta*, a pretty, compact pyramidal shrub; *T. ericoides*, a pretty, slender-growing variety, well adapted for pot-culture; *T. hibernica*, the well-known Irish Yew, which is most useful for pot-culture when of a medium size; *Thuja Lobbi*, a very graceful growing tree, with elegant foliage, bearing a striking resemblance to a large-growing Selaginella; *T. Hookeriana*, a very dwarf form, suitable for small pots; *T. orientalis aurea*, a beautiful dwarf-growing shrub, with golden-tipped foliage; *T. orientalis elegantissima*, similar to the preceding, but of an erect pyramidal habit; *T. plicata*, very elegant, resembling a Selaginella in the beauty of the leaves; *T. tartarica*, compact and conical in growth, and very beautiful; *Thujopsis borealis*, robust and elegant, the leaves dark green; *T. dolabrata*, like the preceding, exceedingly handsome, and desirable for the purpose indicated.

ROSE.—*C. Hipperley, Bath*.—The long rods ought to have been pruned moderately in March last. Allow the shoots to grow unchecked until next spring, and then prune them. As the centre of the tree is rather thin, some of the shoots might be trained over the vacant spaces.

ROSES.—*W., East Yorkshire*.—The roses are not sufficiently established to produce fine flowers. If they make a strong growth this season, the results will no doubt be more satisfactory next year. A mulching of manure will be found the most preferable. If liquid manure is difficult to obtain, use clear soft water instead, and two or three times during the season sprinkle a moderate quantity of guano over the surface of the bed. The articles on the propagation of Roses appeared in the FLORAL WORLD for July, September, and October, 1872. The numbers may be obtained from the Publishers at the usual price and the cost of postage.

GREENHOUSE FERNS.—*J. W. Joy, Brandon*.—The house must be shaded with canvas or tiffany during the time the sun is shining upon it. The atmosphere of the house must be maintained in a moist condition, by pouring water upon the floor two or three times during the day. If the house is filled with ferns, the shading may be kept on until the autumn; otherwise, it must be removed in dull weather.

CAMELLIA LEAVES.—*J. S. M.*—It is a case of scorching. The house in which camellias are grown should be shaded in bright weather. Very probably the sun has been allowed to shine upon the foliage when it has been wet.

GREENHOUSES.—*X. Y*—"The Amateur's Greenhouse," price 6s., just published, will give you every information on the subject.







LILIUM CONCOLOR.

## THE CULTIVATION OF LILIES.

*(With Coloured Plate of Lilium concolor.)*

LILIES are not altogether so desirable in the garden of the amateur as they have been described by writers who never had the pleasure of purchasing bulbs, or paying for their management or mismanagement, as the case might be. When men who have done a little gardening at other people's expense write about lilies, they are sure to recommend their readers to invest widely and wildly, and the result is that those who take their advice get bitten, and it may be that a few of them turn from floriculture with some degree of disgust; whereas, had they been wisely instead of wildly advised, they might have persevered in a path which certainly should be and really might be strewn with flowers. It has been my good or bad hap to labour long with the lilies, and pay for all my experiences. I don't know where to find one whose business it is to write who has done the same. You are not to suppose that I set myself up as the only amateur of lilies, for there are hundreds to be met with, and the few suggestions and reports we obtain from such are of inestimable value. But our writers trust to other people's observations and experiences, having had no opportunities of acquiring experiences of their own, and as lilies are curious plants, the books record successes only, and amateurs who value time and patience, and have to pay for their floral amusements, are too often deluded with notices of lilies that are said to be easy of management, when, in fact, they are extremely difficult. I must confess I should like to have in my pocket now all the money I have wasted on lilies; but I have instead a little knowledge of their waywardness, and I purpose to turn this to account, to the best of my ability, for the service of readers of the FLORAL WORLD.

All the lilies agree in certain characteristics and requirements, which is a great comfort, for it lessens the brain-work of managing them. They are all hardy in the British islands, but only a small proportion of the one hundred and fifty varieties now in cultivation are adapted for permanent occupation of the open border: and it therefore follows that those who would succeed in the cultivation of a collection must keep many sorts in pots, although these same sorts are really hardy enough to endure an ordinary winter in the open ground. All lilies love sunshine, and therefore none of them should be planted in deep shade, although partial shade rarely interferes with their well-doing. They agree, also, in requiring a deep, rich, moist soil when growing, and to be moist, but not wet, throughout the whole of the winter. Stagnant wet in the dark days will kill them more surely than frost, and hence, when wintered in pots, they should have a little water occasionally, even although they appear to be quite at rest. The last remark reminds me of another point of agreement; it is, that *lilies never rest*. They appear to be dormant certainly for months together, but, if the conditions are favourable,

they will then be making new roots preparatory to the next growth above ground; and from this consideration follows another, and with it a rule of practice. Every kind of liliun begins a new growth below ground very soon after the flowering is over, and hence, when the flower stems begin to wither they should be repotted, transplanted, or subjected to any necessary disturbance of the roots. Attention is directed to the words "necessary disturbance," for the roots of a lily should never be disturbed without a reason, and it should be observed that the bulbs are soft and juicy; and hence exposure to the atmosphere exhausts their vital powers, and renders their next growth less vigorous than it should be. Finally, fresh animal manure should never touch the bulbs, or, indeed, be in immediate proximity to the roots. The best manures for them are leaf-mould, rotted turf, and spongy peat. Generally speaking, a soil consisting of peat alone is not the best, although many sorts will grow in it. As a rule, a deep, mellow, fertile loam, enriched with very old hot-bed manure and leaf-mould, will grow lilies to perfection.

The amateur who purposes at this time to begin the cultivation of lilies, will, perhaps, be inclined to ask if the foregoing remarks tend to the depreciation of shop bulbs, which of necessity are taken from the ground and packed in dry material, and kept for some time in a drying atmosphere. As a matter of fact, our remarks do tend that way, and it must be acknowledged that shop bulbs are not so good—other things being equal—as bulbs just lifted from the ground or freshly turned out of pots. But as we cannot do without shop bulbs, and as we have all had to begin by purchasing, we must make the best of the case by *purchasing early, and potting and planting at the earliest possible moment afterwards*. Nine-tenths of all the disappointments experienced by amateurs of lilies may be traced back to the exhaustion of the bulbs in passing through the hands of the trade, and when it is necessary to import the bulbs from Japan, China, and the Pacific coast of America, the bulbs must be subjected to exhaustive conditions, and there is no help for it. The amateur may speculate in *Auratum*s, *Pardalinum*s, *Washingtonianum*s, and others; and having secured fine bulbs, and done full justice to them in cultivation, be so far disappointed as not to see a single flower. This is an extreme case, but it is within possibility. In such a case, what is to be done? The answer is ready, *have patience*. If proper care is taken of the sorts that have gone through a season without flowering, a splendid bloom may be expected the next season, and thenceforward those particular sorts may be regarded as established; and the cultivator who does justice to them will very soon find the stock increase to render him rich in lilies. It often happens that imported lilies require one whole summer to recruit their energies, and, this accomplished, they are prepared to do all that is required of them in the production of their splendid flowers.

There is a peculiarity of growth of these plants that every amateur should take notice of, for it affords a key to one important point in their cultivation. Every lily has *two sets of roots*. One set of roots proceeds from the base of the bulb, the other set proceeds



from the base of the stem above the bulb. Now, it has been conclusively proved by observation and experiment that the bulb prepares within it the stems that are to bear the next year's flowers ; but those stems are nourished by their own roots, and hence the roots that appear on the stems above the bulbs should be covered with soil, that they may be enabled to perform their proper functions. It follows, therefore, that bulbs of lilies should be planted comparatively deep, or put into pots comparatively large, to ensure the proper covering of the roots that will in due time be formed above the bulb. We put hyacinths singly in 48 and 60-sized pots, and they prosper ; but such a course of procedure is destructive to lilies, for not only should their bulbs *but* their stem-roots be covered. Hence, in potting such sorts, for example, as *Lancifolium* and *Longiflorum*, it is better to put several bulbs rather deep in a 24, 16, or 12-sized pot, and look for a great head of bloom, than to pot them singly, and ensure exhaustion of the bulbs.

It may appear from the foregoing remarks that the cultivation of lilies is a very complicated business ; but in truth it is very simple, provided only the main requirements are conscientiously attended to. Messrs. Teutschel and Co., of Colchester, who are the principal importers of lilies from Japan and elsewhere, grow about 150 sorts in the open ground in light, deep, well-drained loam, and they lose but few in winter, and established bulbs flower well in the summer ; and hence, as a rule, lilies of all kinds may be grown together under one very simple system of management. Nevertheless, to attain to complete success, the particular requirements of particular species must be studied, and therefore I have prepared a few notes on the most useful of the lilies, with a view to assist the amateur who has no intention of speculating in an extravagant manner in lilies, but would gladly grow a few of the most attractive kinds and leave to others the joys that accompany the full development of liliomania. The following are adapted for amateurs who take moderate views of things, and are content with such lilies as give the least trouble, and are the surest to produce an agreeable display of flowers :—

*Auratum* is the finest lily known, and one of the best amongst those that are adapted for pot culture. It may be planted out in cool mellow loam or peat, and if the situation is well drained a severe winter will do the bulbs no harm, but if the soil is water-logged they will certainly perish. In the wet winter of 1872-3 I lost a considerable number of valuable lilies, including *auratums* that were planted out in beds of peat ; owing to a defect in the drainage at the time the rain came as a deluge for several days and nights together. *Agapanthus* in the same beds were not hurt in the least. The proper time to pot *Auratum* is the end of September and throughout October. The soil should be carefully shaken from the bulbs, and the fresh roots should be as much as possible preserved. A good compost may be prepared by mixing two parts turfy loam and one part each of leaf-mould, the fibre of good peat, and the sharpest sand that can be obtained. If the loam is poor one part of good rotten hotbed manure may be added. A No. 8 or No. 6 pot will

hold a dozen bulbs, and it is better to pot several together, because of the advantage of *depth of soil* when large pots are used. The best place for the pots is a cold frame, in which they should be plunged to the rim in coal-ashes or tan. Keep the lights off as much as possible, but put them on during heavy rains, and cover them with mats during frost. From first to last they must have water, but during the winter they will need but little. As soon as the growth spears through increase the supplies, and in the height of summer give abundance. Early in May remove them from the frame, and put them out of doors on a brick or stone pavement in the full sun, taking care to protect the roots from the sunshine by laying a few boards aslant against the pots. The under sides of these boards will be always damp, and this will promote a cool state of the roots, while the leafage has all the advantage of sunshine. I have found that the use of liquid manure promotes the flowering at the expense of the bulbs, and I should recommend the amateur never to apply liquid manure except to specimens intended for exhibition, for the bulbs usually perish as the result of using it. Some growers repot annually, but I have found it better practice to repot every second year; and in the autumn, when repotting does not take place, I remove as much of the old soil as possible without injuring the roots, and replace it with a mixture of equal parts rotten manure and mellow loam.

*Bulbiferum*, *Candidum*, *Tigrinum*, *Pomponium*, *Excelsum* or *Testaceum*, *Chalcidonicum*, and *Martagon* are the best of the cheap border lilies, and need only to be planted out in clumps to repay the cultivation, with their fine umbels of flowers. Of this group *Chalcidonicum* is alone worth growing in pots. The well-known *Martagon*, or "Turk's cap," is by no means a showy plant, but large clumps of it in odd places have a good effect, and we must not be in haste to discard so good a reminiscence of the days of Gerard and Parkinson.

*Cordifolium* or *Giganteum* is a singular plant, unlike other lilies, and only adapted for the garden of an amateur who can exercise patience in order to secure a good thing. I have seen it growing grandly in a bed of peat in a sheltered garden in Somerset, and I have had pretty good luck with it on my heavy soil, but the wet winter of 1872-3 destroyed my stock. It is a fine pot plant, requiring a firm loamy compost, and to be shifted on every autumn until it flowers, and then it should not be disturbed for a year, by which time there will be a stock of bulbs in the pot, and they may be shaken out and divided. If well managed, and especially if bountifully supplied with water from May to August, the flower-stem will rise five or six feet, and present a noble cluster of a dozen flowers of an elegant funnel shape, five or six inches long, ivory white, with a delicate tinge of purple in the throat.

*Concolor*.—A neat-growing plant, with spreading lanceolate leaves and a handsome corymb of half a dozen crimson-scarlet flowers, which are indistinctly spotted, and quite without fragrance. This would make a magnificent bedding plant, and it is also well worthy of pot culture.

*Leichtlini* was figured in the FLORAL WORLD for March, 1869. It is a neat-growing plant, well adapted for the open border, but scarcely showy enough for pot culture.

*Longiflorum* is a lovely species of dwarf growth, the flowers large for the plant, elegant funnel shaped, and of the purest white within and without. Having invariably succeeded with this species when growing it in pots, and invariably failed when it has been planted out, I am bound to recommend pot culture. In the autumn of 1869 I planted out a large stock of *Longiflorum* in beds of peat, and left them undisturbed until the autumn of 1873, when they had dwindled away to about a fifth of their original number. When these remaining few were taken up and potted, they were found to be in a thoroughly thriving state, with abundance of roots and a perfect nest of bulbs, proving that the peat soil suited them. As they never flowered, and became fewer every year, I conclude that the climate is at fault, especially as this lily grows early, and is usually killed back by spring frosts.

*Speciosum* or *Lancifolium* is one of the most beautiful, and one of the easiest to manage. It is remarkably hardy, and will thrive in peat or loam, and may be grown in beds or pots without any difficulty. I have had a considerable number of the best varieties of *Speciosum* planted out in beds of peat since the autumn of 1869, and they are now flowering finely, and in the fullest possible vigour. Yet they occupy the very beds which were water-logged last winter, and in which *auratums*, *longiflorums*, *testaceums*, and *chalcidonicums* perished. This showy and accommodating species is badly treated by market growers, who purchase imported bulbs, and pot them in small pots and help them with liquid manure. They send them to market looking glorious, but the bulbs are well nigh ruined. An amateur who should happen to buy market plants would do well to plant them out four inches deep, and forget them. After a year or two they would recover, and again flower in the superb style by which this species is characterized. The best varieties are *rubrum*, *album*, and *punctatum*. S. H.

## THE WINTER DECORATION OF FLOWER-BEDS.



WITH the aid of the cheap, neat-growing evergreen shrubs, the flower-garden may be made to present such a beautiful appearance throughout the winter, that we are bound to express our surprise that more attention is not paid to the decoration of the flower-garden during the dead season. Yet, throughout the winter months, all the compartments that have been occupied with flowers during the summer, and especially those so situated as to be within view from the windows of the dwelling-house, might be richly furnished at a very trifling expense. In our remarks on the "Plunging System," which have

appeared in the pages of the FLORAL WORLD, we have endeavoured to show that the compartments adjoining the residence, and especially the most highly-dressed portions of a terrace-garden, might be kept gay at all seasons by the employment of plants in pots, systematically grown in quantities for the purpose. To furnish any considerable extent of ground, however, by the plunging system would be so costly, that it is not to be thought of for the parterre *in extenso*; and, indeed, it is only for very select spots—choice entrance-courts, and beds and borders nearest the windows—that we have advocated its adoption. For all the larger spaces, the simple and comparatively inexpensive plan of planting evergreen shrubs is worthy of adoption. While these things are small, they may be planted in tasteful groups in November, or later, and be wholly removed and replanted in the months of March and April following, without being in the least injured by the proceeding. Thus they may be made to do duty in the parterre throughout the winter, and contribute to the beauty of some other portion of the grounds during the summer, or may go to the reserve-garden, and be forgotten till wanted again.

In the selection of shrubs for this purpose, those kinds which may be purchased at a low price in quantities are to be preferred. Two of the most distinct and generally useful kinds are the common *Aucuba* and *Berberis aquifolium*. The common *Euonymus* is peculiarly rich and cheerful in the winter season, and the variegated varieties are simply superb. There are several varieties of *Box*, both green and variegated, that may be employed; and we must not forget the exhaustless variety of the *Holly*. Mere curiosities are of little use; we want distinct, bold, massive plants. The *Irish Yew*, while small, is an admirable subject to intermix with round-headed bushes of cheerful colour. Amongst coniferous trees, the commonest *Junipers* and *Firs* are to be preferred; but, in this great department of the vegetable kingdom, there is ample room for choice.

The *Arbor Vitæ*s are also very useful, as they move well, and have a most ornamental appearance. The round-headed *Thuja aurea* is exceedingly valuable. *T. pyramidalis* and *T. Warreana* are also good. The *Golden Yew* is grand for forming distinct margins to masses of shrubs with dark foliage; as also are the variegated *Aucubas*. The green-leaved *Aucubas* have a bright and sparkling appearance, and, like the *Yews*, they can be transplanted without suffering any material check. The *Retinosporas*, which have the appearance of giant *Lycopodiums*, but are far more beautiful than any of the species at present in cultivation. These can all be grown out of pots, provided care is taken to plant them in their summer quarters by the end of March. The tendency of amateurs is to leave them in the flower-beds until May, and a number of the plants perish in consequence of being removed after they have commenced to make new growth. When lifted late, extra attention must be paid to them; but, in every case, a shady situation for their summer quarters should be selected, and, after a liberal application of water, the surface of the soil should be covered with litter of some kind to keep it cool and moist. By systematic cultivation of



suitable plants in pots (which, of course, occasions more labour than plants grown in the open border), a grand system of grouping may be carried out with subjects that are noble and various in aspect, and rich in point of interest for the observant cultivator. From the genus *Hedera* alone we may derive materials for the complete furnishing of a winter garden. The fine chocolate hue of the Shining Ivy; the light green of the Algerian Ivy; the rich dark green of the common Irish and arborescent English Ivy; the solemn blackish tone of Regner's Ivy; and the bright creamy, rosy, and silvery hues of the variegated-leaved Ivies, afford such abundant variety, combined with a delightful freshness of colouring, that we may safely pronounce the cultivation of these plants in pots to be one of the first necessary steps towards rendering our gardens as beautiful during winter as they might be with the wealth of material at our command. But we may add to these many other beautiful subjects, which can only be made available for the winter garden by systematic pot-culture—such, for example, as the *Skimmias*, with their abundance of red berries; the *Cratægus pyracantha*, with its huge bunches of fiery scarlet berries; the yellow-berried tree Ivy; and a host of handsome Japanese shrubs.

It scarcely need be said that a little taste and judgment must be exercised in carrying into effect a suggestion of this kind. In the first instance, if the trees are to be planted in the beds without being prepared for the purpose by pot-culture, the smaller they are, the more likely are they to bear such treatment without injury. But, if potted trees are plunged, they may, of course, be grown on to any size consistent with the wandering life they are to follow; and so long as they can be lifted, they may have larger and larger pots, and grow as freely as they please. But, for temporary planting, trees one to three feet high should be preferred to those of larger size. The planting in the beds should be done with as much care as if they were intended to remain there; and it would be well to plant them rather deep, both to secure the roots against the possibility of injury by frost, and to give them a firm hold, and prevent the stems being loosened by the wind. The transplanting from these beds to the quarters they are to occupy the next summer must be still more carefully performed. In the first place, the trenches and stations they are to be transferred to should be well dug and broken up; and, unless the soil is already of a rich, friable, kindly nature, a liberal allowance of good rotten manure should be afforded for all except coniferous trees, and these should have the aid of leaf-mould. If they are transplanted immediately after the easterly winds that usually blow in March have spent their animosity on the land, they will probably make roots immediately in their new quarters, and require no more care. But if east winds blow for any length of time after their removal, they are likely to be somewhat browned and impoverished. Nevertheless, the risk of injury is extremely small, provided proper care is taken in the management.

S. H.

## THE AMATEUR'S PLANT STOVE.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



TO have a continuous supply of flowers throughout the winter season, a plant stove is imperatively necessary, and the want of this is one of the worst of the many difficulties with which the amateur has to contend.

There are a certain number of plants which bloom naturally with no more warmth than that afforded in the winter by the greenhouse, but they are comparatively few; the flowers lack that brilliancy of colour so much appreciated during November and the two following months. There are in the greenhouse, it is true, the camellias, winter flowering heaths, and a few other things; but few amateurs have a sufficient stock of the former, or are skilful enough to grow the heaths very successfully. With the aid of a stove a large number of extremely showy subjects, which really require but little skill to manage them properly, may be grown. My object, however, in writing this is not so much for the purpose of showing the necessity of a stove in a garden, where flowers are always in request, as it is to point out the way by which the difficulty, where there is no properly constructed stove, may be overcome.

In a very large number of gardens are to be found small houses which, during the summer season, are devoted to cucumbers and melons. These houses make capital stoves during the winter season for the accommodation of plants of comparatively dwarf growth. They are so small in size that a very little fuel will serve to maintain a temperature of 60°, which will be sufficient for all purposes, and in severe weather they can be covered with mats or canvas to keep in the heat. I should propose that the house be cleared out early in September, and then undergo a thorough cleansing, and a fire started. A house of this kind will be of immense service. It will afford just the accommodation required by *Coleus*, *Alternantheras*, and other tender bedders, during the winter, and for a large number of winter flowering plants, such as *Bouvardias*, *Epiphyllums*, *Salvias*, and *Gesneras*, which require a higher temperature than that of an ordinary greenhouse; nothing better could well be desired. In several gardens I have seen these small houses turned to wonderfully good account, and a very nice lot of stove plants kept together. It is simply a question of cost in providing the fuel for the maintenance of the temperature, and this at the present moment is a serious consideration.

Just to show the great usefulness of a house of this kind, I will proceed to point out a few of the most valuable plants that may be most successfully grown in it.

*Epiphyllum truncatum*, of which there is a considerable number of really splendid varieties, usually produces its showy flowers about Christmas, and is one of the best winter subjects. It is hardy enough,

to be grown in a greenhouse during the summer season; but when kept in that temperature all the year round the plants do not make the new growth early enough in the season to admit of its being well matured by the autumn. With the aid of the temperature above alluded to they will commence to make new growth early, and the following season bloom superbly. The warmth is required to bring out the flowers at mid-winter, and to encourage the new growth, which begins to push soon after the flowers are faded. During the summer a sunny position in the greenhouse, with moderate supplies of water at the root until July, will be all that they require, and after the last-mentioned month they still require a roasting situation, but with little or no water.

*Bouvardia jasminioides*, *B. longiflora*, *B. Vreelandi*, *B. Hogarth*, and several others, are most beautiful, and the flowers are unsurpassed for bouquets. These can be grown in a warm, sunny situation out of doors during the summer, and if lifted carefully, potted, and put in a genial temperature, they will flower superbly throughout the winter. The main points in managing them in this rough-and-ready way is to put them out in well-tilled soil, to keep them stopped, to promote the formation of neat bushes, and prevent their exhaustion by the production of their flowers when they are not required. They must not be stopped during the last six weeks or two months they are in the open ground, for it is most important that they should, when lifted, be bristling with flower buds.

*Salvia gesneræfolia* is wonderfully attractive towards the spring, when grown in the form of neat little bushes, and placed in a temperature between fifty-five and sixty-five degrees. The cuttings may be struck in the warm corner of the house about the middle of March, potted off singly when nicely rooted, and then shifted into six or eight-inch pots. After the beginning of June, a moderately open position, with the pots plunged, will be the most suitable quarters for the summer. They must be well supplied with water at the roots, and have also an occasional skiff overhead from the syringe, and if they suffer from neglect in this respect, the lower leaves will fall, and the plants become very unsightly in consequence. They will require stopping two or three times in the course of the season. Remove them indoors sometime in September, and they will bloom much earlier than when kept in a greenhouse all the winter. *S. splendens* is very beautiful during the late autumn, when assisted with a genial temperature. The cuttings should be struck early, and the plants grown out of doors during the summer.

*Begonia Digswelliana*, *B. Saundersiana*, and several others of the same character, bloom superbly and continuously during the winter season. The flowers are not of much value for bouquets, but they are very pretty when employed in the dressing of epergnes for the dinner table. The cuttings strike very freely at any season of the year, but the spring is the best season for propagating a stock, and the routine management consists in shifting the plants into larger pots as required, and stopping the young shoots once or twice to keep them stocky. It is not needful to propagate a stock every season, for the old plants may be cut down in the spring, the

ball of soil reduced, and then repotted in pots of a similar or larger size. During the summer they do exceedingly well in company with cucumbers or melons, or with greenhouse plants, provided they have a warm corner.

The *Gesnera*, and several of its allies, are amongst the finest of winter-flowering plants, and by starting the roots, with the assistance of bottom heat provided by the cucumber bed, and then allowing them to bear the cucumbers company until the end of June, they will make bonny little specimens. Early in July they can be placed in a vinery, or even in the greenhouse, and allowed to remain there until the house is ready for their reception in the autumn. They will then commence to bloom superbly, and the richly coloured flowers and foliage will have a most attractive appearance. If nicely grown, the plants will be most useful for dinner-table decoration; indeed, for the latter purpose few plants can surpass them.

*Euphorbia jacquiniæflora*, another bright and effective subject, can also be made to bloom superbly by the rough-and-ready mode already alluded to in speaking of the gesneras. The temperature of the house during the early part of the spring will suffice to start it into a vigorous growth, and the warmth necessary for the cucumbers during the earlier stages will suffice to keep them in a progressive state. After the middle of July they can be removed to the open air and placed at the foot of a south wall. In this situation they will enjoy every facility for the thorough maturation of the wood, and in all probability will bloom most profusely the following winter. Many cultivators are afraid to put them out of doors, but they will do much better in a warm situation in the open air than in a cool house.

Several orchids will also do well in a house of this kind, provided they can be allowed to remain in the house with the cucumbers until Midsummer. *Dendrobium nobile*, *D. chrysanthum*, *Cypripedium barbatum*, *C. insigne*, *Calanthe vestita*, *C. Veitchii*, *Lælia anceps*, *Oncidium flexuosum*, *O. sphacelatum*, *Phaius grandifolius*, are remarkable for their attractive appearance when in bloom, and adaptability to rough-and-ready management.

There is a considerable number of other things which do well, managed in a similar manner to those alluded to above; but it would occupy too much space to speak of them in detail, and the foregoing remarks will suffice to indicate the utility of the house and the class of plants which may be grown with its aid. It will of course be also useful as a forcing house; for roses, flowering shrubs, bulbs, herbaceous plants in the way of dielytras and spiræas, can be pushed on in it, and all the bother and expense of a hotbed will be avoided.

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## NEW NOTES ON DEUTZIAS.

BY A KENTISH GARDENER.



THE charming *Deutzia gracilis* and the stronger-growing *D. crenata flore pleno* are so valuable for spring decoration, that they should be grown in the smallest garden in which a frame or greenhouse is to be found. They are, especially the first mentioned, very popular with all classes; but they are not often grown so well as one could wish, because of the cultivator not having sufficient knowledge of their cultural requirement. For many years past I have grown them rather extensively, and have tried a considerable number of ways of growing them, for it is of great importance to us to adopt, in the cultivation of plants, those systems by which the best results can be obtained by the smallest amount of labour. The best of the various plans I have tried is to plant them out, and cut them back to obtain strong, well-ripened shoots; and this I shall proceed to describe as briefly as possible. Instructions will be given for striking the cuttings; but it is well the reader should know that, in case no plants should be available for furnishing cuttings, strong plants, out of pots, may be obtained at the principal country nurseries at six shillings per dozen.

To propagate them successfully, cuttings should be taken early in March. Placed in silver-sand, and put in a sweet bottom-heat, they will strike as readily as verbenas, although not quite so quickly. They usually require a month to become well rooted. They must then be potted in three-inch pots, in moderately light sandy soil; after this they should receive the benefit of bottom-heat for a fortnight. A warm greenhouse will then suit them till they have filled the pots full of roots, which will be about the middle of June; after this expose them gradually out of doors for a week.

My plan of proceeding for the after-management is as follows: A piece of ground under a south-west wall is well manured and carefully forked out; here the plants are turned out of the pots a foot apart each way, and during summer they are weeded and watered when necessary. The following March they are cut down to within an inch of the ground; the vacant spaces are then lightly forked up, and about a couple of inches of good rotten manure laid between the plants, which will act as a mulching through the summer. In this position they will make a good growth, much more so than by any system of pot culture that can be adopted, and with infinitely less trouble. If it is desirable to flower some of them the next season, every alternate plant must be lifted and potted early in October, and receive the protection of a pit or frame to encourage them to make fresh roots before winter sets in. The other plants are left in the ground. Those potted for flowering are encouraged to make roots by being syringed, and shut up early in the afternoon of bright days. Hardy as they are, those for forcing ought not to be exposed to more than three or four degrees of frost, just to harden the wood, and send them to rest early. The plants

remaining in the border must be cut down as in the previous year, then fork in neatly a good quantity of manure and a little leaf soil to promote vigorous growth, and by the next autumn they ought to have made shoots two feet in length. *Deutzias*, under ordinary cultivation, produce their flowers upon the previous year's wood. This leads many to suppose that their course of treatment is the correct one, but this is a mistake, for, immediately the plant has done flowering, all the old or last year's wood should be cut out; and while the operator is doing this he will observe a number of young shoots springing up from the bottom; these should be left, and by taking away the old wood these young ones receive all the strength of the roots.

Those who wish to grow them on in pots should cut them down one week previous to potting, when a great part of the old soil should be shaken away from the roots, and pots a size larger be used for the shift. A mixture of good turfy loam and well-decomposed stable dung is a suitable soil for them, and they must always be potted firm. The most important object being to encourage a strong growth, if too many young shoots should spring up from the bottom, they should be thinned out; for a 24-sized pot, not more than seven should be left. They must have every chance of making a quick growth, which they will do better if they can be shaded from very bright sunshine up to the end of September. The shade of a south-west wall suits them admirably. After this they should be fully exposed till they have had 5° or 6° of frost. This exposure will ripen the young wood, and the frost will arrest vegetation; and if after this they are kept pretty dry at the root, they will be fit for forcing by the first week in December, if they are wanted thus early.

The system of pot culture is a troublesome and needless affair, and I cannot understand why we should go through all this routine of potting and watering, when there are other means more simple and more satisfactory. The above plan of cutting down has not been practised by many, but I am confident those who once adopt it will never return to the old method, for not only has the plant a more healthy and luxuriant appearance, but the individual flowers are much larger, and plants so grown have altogether a much more prepossessing appearance as compared with those that are flowering upon old wood.

The plan which can be highly recommended for all ordinary circumstances is the following: As soon as the plants have done flowering, cut out the old wood, and in a few days after turn out the plants in some rich piece of ground in the kitchen garden. I am in this case presuming the plants have flowered naturally, so that the planting out will not take place till all danger of frost is past, which might check the young wood which they always make when they are flowered under glass. The plants will want water in dry weather, until they have obtained a firm hold of the ground, which will be about the end of June. The remarks which I have made above about potting and syringing will be applicable in this case if they are wanted to flower early; if otherwise, pot them and place in a

frame or greenhouse, and give a moderate supply of water till the flower-buds are showing, when it must be increased.

To grow the plants from cuttings, to make nice specimens is, I know, a work of time; still very much can be done by good cultivation. A good stout plant can be had for a shilling, and it is of such plants as these that I shall now speak. A few years since, I received, early in the autumn, a dozen such plants to fill a small bed in an herbaceous garden, and I determined to see what could be done by the liberal use of good fat dung and copious drenchings of manure-water through the season of growth. The plants flowered the first and second year in this bed under the cutting-down system, and they had done remarkably well; but as they were not strictly herbaceous plants, they were considered unsuitable for the position they occupied. But they were suffered to complete the season's growth, which I encouraged by the application of stimulants, for I was anxious to see to what length and substance the young wood could be grown in one year. At the end of the year some of the shoots measured 3 feet 9 inches. The plants were potted, with their roots considerably reduced, at the end of November, and placed in a cold pit secured from frost; and as leisure permitted I took them to the greenhouse, and there trained some of them into a variety of shapes—some on wires and some on sticks. It is a great recommendation that the young wood may be twisted and turned into any shape that may suit the taste of the cultivator. Amongst the number of plants which were subjected to the unnatural plan of training was one of a globe shape. It flowered naturally in a cool greenhouse, and was in its greatest beauty about the middle of April. It was certainly magnificent, for it was literally covered from top to bottom with a sheet of white flowers, with just sufficient of its pea-green leaves to show its full character. I am, however, no advocate for the use of many sticks and ties; to me a plant never looks better than when it is allowed to flower in the way that nature has provided, but still there are many cases in which some training is desirable. To secure such plants as the above, they should be allowed to stand through one winter without being moved. This, of course, can be easily done if enough plants are obtained and planted out, and half of them allowed to stand every year.

The beautiful *D. scabra* blooms in July, and is, therefore, of but little use for pot culture; indeed, the best place for it is the shrubbery border, where it can grow without being interfered with. It may be pruned slightly if the plants are growing out of shape, but, unless necessary, it is not desirable to prune them, for they do much the best when allowed to grow in a similar manner to the lilac.

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POMOLOGY.—M. L. Van Houtte, of Ghent, announces the separate publication, under the title of "Nos Poirés," of a number of illustrations of first-class pears, comprising coloured plates of 50 varieties, and woodcuts of 36 others. For the descriptions M. Van Houtte has availed himself, with due acknowledgment, of the labours of Decaisne, Hogg, Leroy, Dumortier, and others, and has added the results of his own experience.

## BULBOUS FLOWERS FOR SPRING DECORATION.

BY ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington.



THE most useful bulbous flowers for the decoration of the conservatory and sitting-room during the spring months, are unquestionably hyacinths, tulips, and narcissus. There are a number of other things worth growing, but they are only suitable for those who have plenty of money and an abundance of room in which to grow them. There is certainly no other class of flowers capable of producing so good a display during the season referred to as those mentioned above; and as regards their relative merits, they may be taken in the order in which they are placed. As a considerable number of the readers of the FLORAL WORLD are aware, hyacinths are grown here in immense numbers for Covent Garden, and it appears to me that the amateur should proceed in much the same manner as we do, and grow the best of those obtainable at a cheap rate. It should be understood that some of the hyacinths obtainable at, or about, six shillings, are unsurpassed in their shade of colour, and for ordinary decorations it is quite unnecessary to give more for bulbs of the best quality. Moreover, I should not advise the cultivation of more than half-a-dozen varieties of each colour in each of the single and double sections, for that number will comprise all the best obtainable at the above-mentioned price, and between thirty and forty varieties will be represented. This number will be quite sufficient when they are required for home decoration. I have directed especial attention to this point, because so many amateurs believe that the merit of each variety is represented by its money-value, whereas a large number of those procurable at sixpence are considerably better than others of a similar colour costing treble the amount; and my only object in writing this is to show the amateur the way to produce the finest display with the smallest outlay of money, and the least amount of trouble possible.

The cultivation of the three classes of bulbs included in these remarks is so similar, that they can all be included in the same general directions.

With regard to the purchase of the bulbs, it must be understood that hard, sound, well-ripened bulbs are essential to the production of fine spikes of bloom, which cannot be had from those that are soft and spongy, even if they happen to be large in size.

To ensure large, well-developed spikes or blooms, as the case may be, the growth must be prolonged over as long a season as possible, and consequently early potting must be practised. Pot the bulbs early in October, especially if they are wanted for very early flowering, and have to be forced. This will give them plenty of time to form roots and become well established. When this is accomplished before they are placed in the warmth, there will be little danger of



any of them refusing to push up the spikes at the proper time. Dumpiness can be safely attributed to the bulbs not being properly furnished with roots, and it is a waste of time to put paper caps over them with the idea of drawing the spikes up. The fault lies with the roots, and if they are all right there will be little or no fear of a failure. A most excellent compost may be formed by well mixing together mellow turfy loam and well-decayed cow-dung, at the rate of two-thirds loam to one of manure. Let the loam be chopped up roughly, and mix with the bulk a sixth part of silver or river-sand.

Use six-inch pots, and let them be well drained by placing a layer of crocks in the bottom. Put one hyacinth bulb and three tulip or narcissus bulbs in each pot; press the soil rather firm in the pots, and when they are filled to within an inch of the rim, insert the bulbs and fill the soil firmly about them. The neck of the bulb should show just above the soil. When they are simply placed on the surface with a little loose soil about them, the weight of the spike will probably topple them over. The soil should be used in a moderately moist condition, and then no watering will be necessary until they come from the plunge beds. When all are potted, make up a good bed of coal-ashes, through which the worms cannot penetrate, and stand the pots upon it. This done, turn a small pot over each bulb, and cover with coal-ashes, spent hops, or cocoa-nut-fibre refuse, to the depth of six or eight inches. Here they should remain for five or six weeks, and then they may be brought into the forcing house as wanted, for the pots will be well filled with roots. The young growth must be inured to the light in a gradual manner, and the plants kept near the glass. After they are well started into growth, water liberally, and let them have a breath of fresh air during the warmest part of the day; but it must be admitted without chilling the tender growth.

The bulbs must not be left in the plunge bed long enough for the foliage to grow long and become blanched. Therefore, when the flowers are not wanted until late in the spring, lift them out of the plunging material and place them in a cold frame or pit, where light and air will have free access to them. Those for early flowering must not be exposed to too great a heat, or the flower-spikes and foliage will be drawn up weak and spindly; and at all times keep as close to the glass as possible, because neat, properly-developed foliage that will maintain an erect position without support is nearly of as much importance as good spikes of flowers, for there is but little pleasure in seeing plants with lanky and broken foliage, even if the spikes are of good average quality; but usually if the foliage is drawn the flower spikes also will be drawn, and the plants present a most unsatisfactory appearance.

As these bulbs produce their flowers in March, when grown under glass, without the assistance of fire-heat, I would not advise the amateur who grows a few dozen bulbs only, to force them at all, but when sufficient is potted to maintain a succession, two-thirds should be forced and one-third allowed to bloom naturally. If the above mentioned proportion is forced, they should be introduced into the forcing-pit in two batches.

The following list consists exclusively of varieties remarkable for their quality and easy culture, and which can be obtained at a low price. The varieties are those we grow most extensively for market, and are therefore adapted for conservatory decoration :—

**HYACINTHS.**—Double Red : *Panorama, Madame Zeutman, Rose Mignonne, Groot Voorst, Waterloo.* Double White : *La Virginité, Penelope, Virgo, A-la-Mode, Anna Maria, La Tour d'Auvergne.* Double Blue : *A-la-Mode, King of the Netherlands, Prince Frederick, Lord Wellington, Grand Vedette, Prince van Saxe-Weimar.* Single Red : *Homerus*, the earliest red ; *Veronica, Belle Quirine, Diebitsch Sabalkanski, Lord Wellington, Amy, Norma, Robert Steiger, L'Ami du Cœur.* Single White : *Elfrida, Alba superbissima, La Candeur, La Pucelle d'Orléans, Madame Turc, Voltaire.* Single Blue : *L'Ami du Cœur, Baron von Tuyll, Charles Dickens, Emericus, Emilius, Fleur Parfaite, Bleu Aimable, Grand Lilas.*

**TULIPS.**—Single : *Bizard Verdikt, Jagt Van Delft, Lac Van Rhyn, La Reine, Duc Van Thol*, in several colours ; *Duchesse de Parma, Silver Standard, Yellow Prince.* Double : *Duc Van Thol, Duke of York, Gloria Solis, Rex Rubrorum, Tournesol, Yellow Rose.*

**NARCISSUS.**—*Double Roman, Gloriosa, Grand Monarque, Grand Primo, Groot Voorst, Paper White, States General.*

## TOWN ROSES.

BY GEORGE GORDON.



NO doubt a considerable number of the readers of the FLORAL WORLD know, to their cost, that the cultivation of roses in towns is a far more difficult task than in the country, where the atmosphere is at all times pure and free from the noxious smoke, which is such a great enemy to town and suburban gardeners. It is, therefore, especially necessary that the suburban gardener should be well advised upon the principal points in the culture of the rose ; and as the season for buying and planting is once more at hand, it has occurred to me that a few practical remarks upon these important matters will be of especial service to a large body of readers.

Standard roses are, it may be said with safety, most objectionable in country gardens, excepting in the rosarium proper, for they are far from pleasing in appearance, even when in bloom they are quite surpassed by bush roses ; but in suburban gardens they are objectionable on two grounds—the first their ugliness, and the second their utter inability to withstand the injurious effects of a vitiated atmosphere. Of the truth of this we have only to take stock of the gardens in the suburbs of any of the large towns, and of every hundred standard roses met with, at least eighty will be in a starving and miserable condition ; especially is this the case when the grass is allowed to grow close up to the stems, or when they are

used as trellises to train canary creepers and other climbers to. From the foregoing remarks it may be inferred that to ensure success in rose growing near towns, dwarf roses alone must be grown, and the wise man will purchase those only on their own roots, in preference to those worked upon the Manetti or other stock. Much might be said upon this point, but it will suffice to say that no matter what the rose may be the stock is the same; therefore we are dealing with the dog rose or Manetti, so far as soil, manuring, and watering is concerned, and certain it is neither of these stocks succeed anywhere so well as in a breezy, open situation, far away from the town. We have also to remember that worked roses are not unfrequently killed by the severity of the winter, but in the case of those on their own roots, it is a matter of comparatively small importance if they are cut down to the ground line, for the following spring they will be able to produce a strong growth from the base. There will of course be a small display of flowers the summer following, but that will be as nothing compared with the total loss of a large number of plants. Moreover, dwarf roses are not so quickly affected by the impurity of the atmosphere as the tall standards, and they are also cheaper to purchase.

Roses must have air, and therefore instead of their being planted, as is frequently done, near boundary fences, buildings, and under the shade of trees, they should be planted in the most open position the garden will afford, and that, as a rule, will be somewhere near its centre. This of course has special reference to the growth of roses in the small strips of garden ground attached to villas near town; in moderately open situations, from six to eight miles from town, the selection of a position for the rose beds will be attended with less difficulty, as they will do well in any part of the garden beyond the influence of large trees.

In the planting of roses it is necessary that it should be clearly understood that they grow and flower better in a deep and rather heavy loam, and if the soil is of a light and hungry character, it must be improved by the liberal addition of clayey loam and partly decayed stable manure. Soils of a very close and retentive character may be materially improved by a dress of road scrapings and manure.

As the roses should not occupy too great a portion of the garden, the preparation of the soil will not be a very serious matter, and in the majority of cases two loads each of manure and loam will be ample, and in preparing a bed for twenty or thirty bushes, a load each will be sufficient. The soil must be turned up to a depth of fifteen or twenty inches, and the new stuff well incorporated with the staple. This should be done, if practicable, a few weeks before the roses are planted, as the soil will then undergo a slight pulverization, and be in a better working order when the planting is done.

Early buying is most important, for the simple reason that those who buy first have the best choice of sorts, and are able to plant at the proper time, *i. e.*, the early part of November. The soil at that period is generally in a nice workable condition, and invariably much warmer than later on or in the spring. The only place from which roses should be purchased is a respectable nursery, for those met

with at shop-doors or auction-rooms are seldom true to name, and always more or less injured by exposure during the time they have been out of the ground. The roots are very soon injured by exposure to the atmosphere, and should therefore be out of the ground as short a time as possible, and be protected in some manner during their transit from the nursery to the garden. Roses on their own roots do not make such rapid progress during the first two years as those upon the brier, and it will be necessary to be satisfied with plants rather smaller. They will, however, soon attain the same size as the others, and in course of time even surpass them. To ensure a good display from the first, the distance between the plants should be about three feet each way. During the first summer, geraniums and other flowering plants may be put between them, but they must, under no consideration, be stifled by the growth of other things. Tread the soil about the plants very firm, and if the expense is not a serious matter, spread a layer of partly decayed manure over the surface. In March prune the previous season's growth to the second or third joint, and in subsequent years prune according to the character of growth, and the growth made by each plant. To maintain a vigorous growth, a moderate dressing of manure will be necessary every year. It should be applied in the autumn, and then turned in without injuring the roots.

It must be understood that all the varieties are not alike suitable for the neighbourhood of towns, and in the list here given especial care has been taken to include none but the most suitable for the purpose indicated :—

HYBRID PERPETUAL. — *Alfred Colombe, Baroness Rothschild, Baronne Prevost, Charles Lefebvre, Comte de Nanteuil, Docteur Andry, Duchesse de Morny, Elie Morel, Eugène Appert, François Treyve, François Lacharme, Général Jacqueminot, La France, Jean Goujon, John Hopper, Jules Margottin, Lord Raglan, Louise Darzins, Madame Charles Wood, Madame Clémence, Madame de Cambacères, Madame Domage, Madame Knorr, Pierre Notting, Prince Camille de Rohan, Vicomte Vigier, Vicomtesse Vezins, Victor Verdier.*

BOURBON PERPETUAL.—*Emotion, Rev. H. Dombrain.*

BOURBON.—*Prince Albert, Souvenir de la Malmaison.*

CHINA.—*Common China, Mrs. Bosanquet.*

MOSS.—*Baron de Wassender, Common, Luxembourg.*

HYBRIDS OF CHINA AND BOURBONS. — *Charles Lawson, Coupe d'Hebe, Paul Ricaut, Paul Perras, Vivid, William Jesse.*

THE SHABBY WAY.—When "London Scenes and London People" appeared, it was noticed in these pages with some amount of approbation, with which it appears the publishers are satisfied. In the *City Press* of August 9, our notice is reproduced in the form of an advertisement, and a novel method has been invented to turn it to account so that it may benefit "London Scenes" and render no service whatever to FLORAL WORLD. At the end of the notice is appended, "the F. WORLD." Only one in a thousand, perhaps, of the readers of the *City Press*—that is to say, the *C. Press*—will know what is meant by the shabby acknowledgment.



## THE SMALLEST LILY IN THE WORLD.



THE subjoined figure of *Litanthus pusillus*, represents a South African plant of the liliaceous order, which may with propriety be designated the smallest lily in the world. It belongs to the alliaceous section of the lilies; the bulbs are smaller than hazel nuts, the leaves are like green threads, and the flowers are pearly white, nodding grace-



LITANTHUS PUSILLUS.

fully. The figure is from "Botanical Magazine" (tab. 5995), in which Dr. Hooker records receiving the bulbs in 1870 from Mr. Bolus. "They were planted in light soil, and placed in a warm house, where they flowered freely in August."

October.

## NOTES OF THE STORAGE OF ROOT CROPS.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



IN all gardens large enough to produce a sufficient supply of vegetables for the family, one of the prime necessities is a properly constructed house for the storage of potatoes and other roots for winter and spring use. An expensive structure is not required, provided the internal temperature is not quickly affected by sudden changes in the weather outside, the means of ventilation sufficient, and room enough for storing the crops in a manner that will admit of their examination whenever circumstances may render it desirable. Cellars are usually devoted to the storage of roots during the winter, but they are generally too damp, and also insufficiently ventilated; consequently the danger exists of the quality of the produce being impaired, and the health of the occupants of the house injured, by the exhalations arising from decay.

The most essential matters to be considered in keeping roots through the winter, are to exclude the air from them to preserve them in a plump condition; at the same time to provide the means of allowing the ready escape of all noxious exhalations, and to remove all roots commencing to decay before they contaminate others contiguous to them.

The root-house should be erected with the floor a few feet below the general level, and in a shady situation, the north side of a wall or building being probably the most suitable. The sod taken out in excavating the foundations, etc., should be banked up against the walls, for it will help to keep the house warm in winter and cool in summer. A thatched roof is preferable to one of slate, and if the latter is employed the roof should be lathed and plastered for the purpose of securing a more regular temperature. The most convenient-sized house will be one twelve feet in width and eight or ten feet in height, and of a sufficient length to hold the greater proportion of the crops grown. The length must be determined by the requirements of the family, but the width here given will admit of shelves four feet in width on each side, and a walk of the same width in the centre. Two shelves of stout boards on each side will suffice, and the first should be about four feet from the floor, and the second three feet above it. The uprights and cross pieces supporting the shelves must be of sufficient strength to support the rather heavy weight they will have to bear, and to keep the roots in their proper place grooves on the uprights should be provided for fixing boards in front when required. This can be readily done by nailing two strips of wood at a distance of about two inches apart. It will be better to fix the ventilators in the roof, and then air can be admitted without its having to pass so directly over the stores as would otherwise be the case. The pathway may be of bricks or foot tiles, the latter being the most preferable; stone or slate may also be employed.

In arranging the house for the reception of the roots, the potatoes, because of their larger bulk, should be put on the floor, and such things as carrots are best upon the shelves above; but, if necessary, a portion of the shelves may be devoted to the potatoes. The top shelves will be the most suitable place for the onions, which, as is tolerably well known, require no covering.

All vegetable roots keep best when stored in a rather dry state, and therefore dry weather should, as far as practicable, be taken advantage of for lifting them; and if this is inconvenient, and the work done in wet weather, or when the roots and the ground are in a wet state, they must be spread out on the floor of an airy shed, or one of the fruit houses, until they have become rather dry. Potatoes form no exception to the rule, but a mat or some other light covering must be laid over them to keep the light from them. In packing the potatoes away for the winter, it is a very good plan to sprinkle dry lime over them in sufficient quantities to just cover the outside of the tubers. They do not, it must be understood, require to be packed in a mass of lime; it is simply necessary to sprinkle, as each lot of potatoes is put in the bin, a few handfuls of lime over them, and then turn them over and sprinkle a little more. Put a good thickness of straw next the wall, and also on the approach of severe frost over the potatoes. At other times a covering sufficient to keep the light away, from them will be all that is required.

Beet, carrots, salsify, and scorzonera should be taken up some time in October or November, and stored in dry sand. When the roots are dry enough for storing, lay them rather close together on their sides, and put sufficient sand over them to fill up the intervening spaces. They will thus keep quite plump and fresh, and if injured roots are rejected, there will not be much danger of their decaying until the spring season.

Parsnips, Jerusalem artichokes, and turnips, may be left in the ground all the winter, but in the majority of cases it will be better to lift them and store them in sand. They can be kept in first rate condition, and ready for use when required, and the quarters in which they are grown are set free, and may be dug up and left in a rough state to expose the soil to the action of the weather. It is not only important to turn over the soil as early in the winter as the circumstances will permit, but it is desirable to push on with all the heavy work as fast as possible, to ensure its being completed before the head and the hands are taxed in the spring with the work properly belonging to that season. Turnips are not often stored, for it is generally supposed that they keep better in the open ground, but it is very certain that severe frosts do them no good, and also that they start into growth and become spongy and worthless, whilst those in the root-house remain quite firm and of first-rate quality.

With regard to the attention required by the root crops during the winter, it is simply necessary to say they will want overlooking two or three times in the course of the season, for the purpose of removing such as are unsound, or likely to become so in a short time. These should be put on one side for immediate use, if not decayed. The shoots must be removed from the potatoes, for they soon become of

little value if these are allowed to grow unchecked. It need hardly be said that matters of this kind should have attention when the weather is unfavourable for outdoor work.

Potatoes and all the other roots mentioned may, if there is no root-house, be kept in clamps. In making clamps, select a dry, sheltered position, and if the subsoil is naturally dry, open out a trench about four feet in width and two feet in depth, and of a sufficient length. In this lay the roots, bringing them to a point at the top, and then cover with a good thickness of straw. Over this put not less than twelve inches of soil, and make it firm and the surface smooth, to throw off the heavy rains. On wet soil lay the roots on the surface in the manner described, and obtain the soil for covering them by digging a trench two feet in width all round, and as deep as may be required for obtaining enough soil for covering the clamp.

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### THE GARDEN GUIDE FOR OCTOBER.

KITCHEN GARDEN.—Asparagus to be cut down to the surface of the ground, be well cleaned, and covered with four inches of half-rotten dung. The spade must never be used either on the beds or in the alleys. Cabbage to be hoed between, to destroy the weeds which have abounded since the autumn rains commenced. Plant out the main spring crop, and earth up the collards. Those last sown to be pricked out to strengthen on four-foot beds. Cauliflowers to be planted out under frames and hand-lights, and some potted. If there are many plants still left in the seed-bed, prick them out on a warm slope, or make up a raised bed for them, so that they can have the protection of mats or hoops during sharp weather. Rhubarb to be forced may now be taken up, and laid on one side until it is time to put in the boxes, or whatever other position it is to occupy when forced. In storing potatoes, be sure they are dry first; if taken up in wet weather, spread them out in a shed or outhouse, but do not expose them to the light more than can be helped. Parsnips keep best in the ground, to be dug as wanted. Beet to be taken up at once; cut off the leaves an inch above the crown, and avoid bruising or cutting the roots; carrots treat the same; store both in sand or dry earth. Earth up cardoons; take up scorzonera and salsify, and preserve in sand. Winter greens can scarcely be overdone on the ground, though they may be in the pot. As there is now much ground vacant, another hunt of the seed-bed will show some plants worth moving to plant out; if they do not make great hearts, they will nevertheless be useful in the spring.

FRUIT GARDEN.—Fruit trees that are making gross shoots may often be compelled to direct their energies to better results by some disturbance of their roots. We have had, before now, to heel over a whole plantation of plums when a warm autumn and moist weather set them growing again late in the season. Of course, large trees must not be so dealt with; but they are more obedient to the wish of the cultivator, and rarely grow too much when in a good bearing



state. Make stations ready at once for all trees to be planted. A deep hole opened at the time of planting is a mere mockery; the ground should be deeply stirred now, and left in a very rough condition; but the holes should not be made till wanted, as by that time they might happen to be full of water. It is a good plan, when about to purchase trees, to go to the nursery while they are in leaf, and mark all the trees selected with the purchaser's name. Let no fruit hang after this date; those not ripe must ripen in-doors; it is too much risk to leave them out any longer. Unfruitful trees may be improved by commencing at once to root-prune, manure, or drain the soil. The nature of the cure must depend upon the cause of barrenness. If the trees have attained a bearing age, and are over-luxuriant, root-prune by this simple method:—Open the soil three parts round each tree, at a distance from the stem of from two to four feet, according to the size of the tree. The roots must be cut back to a general average of two, or three, or four feet, except the part where the soil was not opened, where the roots will remain, of course, their original length. The roots cut back to be carefully laid out near the surface, and a little fresh soil used in filling in. Next season open the soil on the side left undisturbed the year before, and there cut the roots to the same distance as before, and so on annually or biennially, according to the growth they make. Old trees that have borne for many years, and are getting weak, to have the surface soil thinly pared off, and a layer of new soil laid down over the roots, and above that a layer of dung only slightly rotted. Where grapes are to hang some time, all decaying berries must be cut out from time to time, and the atmosphere kept dry. Cut away all the sappy and softer ends of the rods, without respect to the system of pruning adopted; this will cause the remaining buds on the rods to swell nicely, and promote their ripening.

FLOWER GARDEN.—American plants may be moved now better than at any other period of the year. Whoever plants these must be sure, in the first instance, that the soil is suitable. Many of the natural loams about London suit them admirably; and, on the other hand, there are many otherwise good loams in which they will not grow at all. It is only to be determined by experience on the spot; and where there is any doubt, the only safe course is to cart in peat from the nearest source of supply in the district. We use a mixture of yellow loam and peat from Wanstead—equal parts—and prefer it to all other soils for fine-rooted plants. Pontic rhododendrons and their varieties are the least particular about soil of any of the race. Some of the best hybrids will grow in any leafy mixture with plenty of sand. Clay or chalk will never do for any of the race, but loamy turf and leaf-mould are of great service, either to increase the bulk of peat where it is an expensive article, or to take its place entirely where it is difficult to obtain it. In any case, American plants must have a soil in which their fine hair-like roots can run, and quite free from salts of lime, which poison them; good fibry peat is the only material in which any great variety can be grown, and that is abundant in almost every part of the country.

As they never root deep, an excavation of two feet deep is plenty in the making of a bed. Bulbs of all kinds to be planted in beds and borders. Pot hyacinths in succession, so as to prolong the season of blooming. Carnations and picotees not yet rooted from layers must be taken off the stools and planted under hand-glasses; those with a few root fibres may be potted; having begun to root, they will soon gain strength. Border cloves may be propagated to any extent from cuttings in spring.

PLEASURE-GROUND AND SHRUBBERY.—Deciduous trees may be planted now *ad lib.* No occasion to wait for the falling of the leaf; never mind if they are as green as in July, take them up, and dispose of them as required; the shift will do them more good than harm. Fruit-trees, roses, forest trees, ornamental shrubs, and all such things, may be ordered in from the nurseries, and planted at once; and from this date every day gained is a real gain for the future well-doing of the trees, which will begin to make roots directly, for the ground is *now warm*, but from this time will get cooler every day, and the longer planting is delayed the longer will the trees require to make more new roots, on which their vigour next season will depend. Never plant while the ground is in a sodden state; if it does not crumble freely, wait a bit; meanwhile lay the trees in by the heels to prevent injury to their roots by sunshine and drying winds. Evergreen shrubs will move now better than in spring; the earth is warm and the air moist, and they will make fresh roots at once. This is the best time of the whole year to make alterations in shrubberies and wildernesses. Not the least occasion to wait for trees to be quite at rest before moving them; the fact is, if they are still growing, and are to be lifted, the sooner they are lifted the better, if only to put a stop to their activities. Hollies will move now with safety, as will aucubas, laurels, thujas, and all kinds of conifers. Extraordinary pains are taken to keep the root balls of trees intact in the process of transplanting, which we are firmly convinced are needless. In fact, we would always prefer to shake the earth off the roots entirely, sooner than plant any tree with a complete ball. The reasons why, we cannot make room for in this space, but the reminder may be useful to planters who, from past experience, have doubts about the value of keeping masses of earth about the roots in transplanting. When stripped bare, and every fibre exposed, a tree must be planted with much more care than when lifted with a ball by a machine, and dropped into a hole, and that extra care is a gain and an argument for the better practice.

GREENHOUSE.—Ericas can be better wintered in a pit than in the greenhouse. It is certainly best to let them taste as little as possible of fire-heat, though they must be kept safe from frost. A damp, still air, especially if a little warmed to suit the growth of soft-wooded plants, is most injurious to these nearly hardy and free-natured plants. Water only on fine days, and then as early as possible; keep the plants hardy, and if they get three or four degrees of frost on them, they will take no harm if kept dark till thawed. The result of such treatment will be short joints and a fine

bloom. Fuchsias going out of bloom, which are to be grown another season, should be put out of doors to harden them, and left unpruned till they have tasted a very slight frost; then cut them in slightly, and house in any moderately dry place, either light or dark, till they begin to break in the spring. Revise the whole stock of plants in pots as opportunities offer; to remove worms from pots, renew the drainage where it has got stopped up, and otherwise prepare for the casualties of winter. Greenhouse plants that have been standing out must now be housed, and those to be forced must be repotted, if needful.

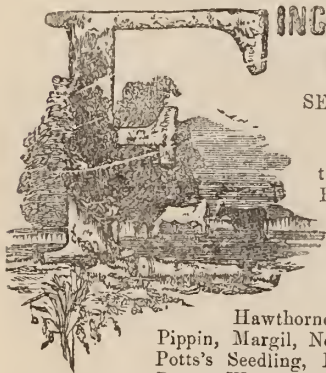
**PITS AND FRAMES.**—Plants in frames will soon be infested with mildew now, if kept close or damp. Though nothing should go dust dry, it will be best always to defer watering till the weather is clear and bright, and then water well the first thing in the morning, that the pots and plunged material may be somewhat dry before night; one good watering will go a long distance now. Keep the plants clean by removing dead leaves, and cutting off the soft tops of any green shoots of geraniums, etc., which show signs of mildew.

### NEW BOOKS.



**PROPOS** of our coloured plate and leading article, we have to recommend to lovers of lilies the best book hitherto published on those plants. *Notes on Lilies and their Culture*, by Messrs. TEUSCHEL & Co., of Colchester, is a nice little contribution to this great subject. We can hardly call it a book, and the authors do not pretend to be book makers. They are importers and cultivators of lilies, and know more about lilies than most people, and their manner of communicating knowledge does them honour. Whoever wants the book can obtain it through the post by sending 2s. 2d. to Messrs. Benham and Harrison, High Street, Colchester.—*The Art of Grafting and Budding*, by CHARLES BALTET, published at 37, Southampton Street, is a fair translation, suitably illustrated, of a famous French treatise.—*The Tropical World and The Sea and its Living Wonders*, by Dr. HARTWIG, have been revised and reproduced by Messrs. Longman, and in their latest improved form may be regarded as models for the writers of popular scientific books. These handsome volumes are equally adapted to awaken the curiosity of the young, and furnish recreation and useful knowledge to the mature. Dr. Hartwig knows what he writes about, whereas it is the rule for such as do not know, to imagine that knowledge is not needed for the “popularization” of any branch of physical science.—*The Canadian Fruit, Flower, and Kitchen Garden*, by D. W. BEADLE, published by Campbell & Son, Toronto, is a nice octavo volume, well done throughout, and a credit to the horticultural literature of the Dominion. For the most part, no doubt, the Canadian gardeners have hitherto trusted to English books; but it is better that books should be written for them by horticulturists experienced in the Canadian climate and the tastes of the people,

which in some points differ from the tastes of the old country.—*The Orchardist*, by Mr. SCOTT, of the Merriott Nurseries, Somerset, is completed, and forms a respectable octavo volume. For all practical purposes, it is the best fruit book in the English language, and we should right well like to see an illustrated edition printed on good paper for the gentleman's library.—*Workshop Appliances*, by C. P. B. SHELLEY, published by Longman & Co., is a capital book for the young engineer, and for all, indeed, who use gauging instruments, cutting tools, lathes, drills, planes, and other instruments of torture by means of which the metals are fashioned for use and ornament.—*The Amateur's Greenhouse and Conservatory*, by SHIRLEY HIBBERD, is a companion volume to the *Amateur's Flower Garden* of the same author. It comprises chapters on the construction and heating of plant-houses, and on selecting, and furnishing, and managing them. It is copiously illustrated with coloured plates and wood engravings, and the publishers have given it a handsome jacket. As a matter of course we offer no opinion of the merits of this book, but we know that for many years such a work has been wanted, and we hope and believe it will be welcomed by thousands of amateurs, whose interests the author has been careful to consider from first to last.



## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

SELECT FRUITS FOR THE GARDEN,  
ORCHARD, AND FORCING-HOUSE.

APPLES FOR ORCHARD PLANTING.—Alfriston, Annie Elizabeth, Bedfordshire Foundling, Beefing Striped, Blenheim Orange, Court Pendu Plat, Court of Wick, Dumelow's Seedling, Devonshire Quarrenden, Dutch Codling, Keswick Codling, Fearn's Pippin, Forge, French Crab, Galloway Pippin, Golden Noble, Golden Reinette, Gooseberry Pippin, Hawthornden, Hanwell Souring, Kerry Pippin, London Pippin, Margil, Nonpareil, Norfolk Bearer, Northern Greening, Potts's Seedling, Ribston Pippin, Sturmer Pippin, Sykehouse Russet, Ward's Pippin, Winter Pearmain, Yorkshire Greening.

APPLES (DESSERT) FOR GARDEN CULTURE.—Ashmead's Kernel, Baddow Pippin, Beauty of Kent, Braddick's Nonpareil, Cellini, Cornish Gilliflower, Cockle Pippin, Cox's Orange Pippin, Court Pendu Plat, Early Harvest, Early Nonpareil, Knight's Downton Pippin, Golden Harvey, Irish Peach, Juneating, Hubbard's Pearmain, King of the Pippins, Lord Burleigh, Newtown Pippin, Nonsuck, Northern Spy, Reinette du Canada, Ribston Pippin, Scarlet Nonpareil, Waterloo, Wyken Pippin.

APPLES FOR VERY EXPOSED SITUATIONS (D, Dessert; K, Culinary).—Bedfordshire Foundling; Carlisle Codling, K; Devonshire Quarrenden, D; Early Julien, D; Franklin's Golden Pippin; French Crab, K; Gloria Mundi, K; Hawthornden, K; Kerry Pippin, D; Keswick Codling, K; London Pippin, K; Manx Codling, K; Margil, D; Nonsuck, D; Royal Russet, K; Summer Strawberry, D; Sykehouse Russet, D; Tower of Glammis; Yorkshire Greening, K.

CHERRIES FOR GARDENS, BEST TWELVE.—Werder's Early Black, D; Belle d'Orléans, D; Black Tartarian, D; May Duke, D; Black Eagle; Bigaireau Napoléon, D; Elton, D; Florence, D; Coe's Late Carnation, D; Kentish, K; Belle Magnifique, K; Morello, K; Frogmore Early Bigarreau, D; Royal Duke, D.



CHERRIES FOR ORCHARDS.—Early Prolific, Black Tartarian, May Duke, Elton, Buttner's Black, Kentish, Bigarreau Napoleon, Mainmoth, Late Duke, Tecumseh.

CURRANTS.—*White*—White Dutch, White Grape. *Red*—La Fertile, Ruby Castle, Red Dutch. *Black*—Black Naples, Lee's Prolific.

FIGS FOR WALLS.—Brunswick, Black Ischia, Brown Turkey, Grande Florentine, Castle Kennedy. *For Forcing*—Black Ischia, Brown Turkey, White Ischia, Royal Vineyard.

GOOSEBERRIES FOR DESSERT.—*Red*—Champagne, Early Red Hairy, Red Globe, Rough Red, Turkey Red, Companion. *Yellow*—Glory of Ratcliff, Leader, Yellow Champagne. *Green*—British Queen, Green Gage, Green Gascoigne, Turu-out. *White*—Queen of Trumps, Hedgehog, White Champagne.

GOOSEBERRIES FOR CULINARY USE.—Bright Venus (Taylor's), Crown Bob, Hepburn's Prolific, Ironmonger, Keen's Seedling, Nelson's Waves, Overall, Rifleman, Roaring Lion, Warrington, White Eagle, Whitesmith, Victory (Lomas's).

GRAPEES FOR WALLS.—Muscat St. Laurent, Esperione, Miller's Burgundy, Royal Muscadine, Black Hamburgh. The last-mentioned requires a dry border and warm position, or it will not ripen its fruit.

GRAPES FOR COOL VINERIES.—Chasselas Musqué, Foster's White Seedling, Madresfield Court Muscat, Royal Muscadine, Black Hamburgh, Buckland Sweetwater.

GRAPES FOR HEATED VINERIES.—Frankenthal, Muscat of Alexandria, Bowwood Muscat, Muscat Hamburgh.

GRAPES FOR A LATE VINERY.—Gros Colmar, Kempsey Alicante, Madresfield Court Muscat, Black Lady Downes, White Lady Downes, West St. Peter's, Muscat of Alexandria.

NECTARINES.—*For Walls*—Balgowan, Early Newington, Elruge, Hardwicke, Oldenberg, Pine Apple, Violette Hâtive, Pitmaston Orange.—*For Orchard and Forcing Houses*—Early Newington, Elruge, Pitmaston Orange, Violette Hâtive.

PEACHES.—*For Walls*—Bellegarde, Early York, Grosse Mignonne, Crawford's Early, Prince of Wales, Royal Charlotte, Royal George, Nobiesse, Barrington, Walhurton Admirable, Salway. *For Orchard and Forcing Houses*—Bellegarde, Early Grosse Mignonne, Royal George, Grosse Mignonne, Noblesse.

CHOICE PEARS FOR STANDARD OR ORCHARD PLANTING.—Citron des Carmes, Jargonelle, Thompson's, Williams's Bon Chrétien, Comte de Lamy, Dunmore, Ne Plus Meuris, Forelle, Winter Nelis, Seckle, Swan's Egg, Beurré de Capiaumont, Autumn Bergamot, Napoleon, Beurré d'Arenberg, Beurré d'Amanlis, Louise Bonne of Jersey, Fondante d'Automne, Easter Beurré, Catillac, Belissine d'Hiver, Aston Town, Windsor.

CHOICE PEARS FOR BUSHES AND PYRAMIDS.—Alex. Lamhre, Bergamotte d'Esperen, Beurré Clairgeau, Beurré d'Arenberg, Beurré d'Amanlis, Beurré de Rance, Beurré Easter, Beurré Goubault, Bon Chrétien, Broom Park, British Queen, Brockworth Park, Conseiller de la Cour, Délices de Jodoigne, Doyenné Boussoch, Doyenné Defais, Doyenné d'Été, Duchesse d'Angoulême, Eyewood, Fondante d'Automne, Forelle, Glou Morceau, Hacon's Incomparable, Huyshe's Victoria, Jargonelle, Louise Bonne of Jersey, Monarch, Prince Albert, Suffolk Thorn, Winter Nelis, Yat, Zéphirin Grégoire.

CHOICE PEARS FOR A WALL.—Bergamotte d'Esperen, Bezi Mai, Beurré Diel, Beurré Bosc, Beurré Goubault, Brockworth Park, Chaumontel, Marie Louise, Knight's Monarch, Ne Plus Meuris, Hacon's Incomparable, Thompson's, Graham's Autumn Nelis, Glou Morceau, Jargonelle, Winter Nelis, Josephine de Malines, Easter Beurré, Doyenné d'Été, Bon Chrétien, Louise Bonne of Jersey, Beurré Rance, Alexandre Bivort, Pitmaston Duchesse d'Angoulême.

PLUMS FOR DESSERT.—Early Favourite, July Green Gage, Bon Bouche, Deniston's Superb, Prédigron Violet Hâtif, Green Gage, Transparent Gage, Jefferson, Coe's Golden Drop, Reine Claude de Bavay, Reine Claude Violette, Coe's Late Red, Blue Impératrice, Washington.

PLUMS FOR CULINARY PURPOSES.—Gishorne, Early Prolific, Early Orleans, Mitchelson's, Denyer's Victoria, Diamond, Washington, Belle de Septembre, Prince Englebert.

RASPBERRIES.—*Yellow*—Yellow Antwerp, Magnum Bonum, October Yellow. *Red*—Fastolf, Carter's Prolific, Red Antwerp, Maclaren's Prolific.

STRAWBERRIES, TWELVE BEST FOR SUCCESSION.—Amateur, Vicomtesse Héricart de Thury, Dr. Hogg, Crimsou Queen, Keen's Seedling, Marguerite, President, Royalty, Frogmore Late Pine, Sir Charles Napier, Princess of Wales.

October.

## HORTICULTURAL AFFAIRS.



## ROYAL HORTICULTURAL SOCIETY. — EXHIBITION OF DAHLIAS

AND ASTERS, September 3.—Prizes were offered for Dahlias, Asters, and Liliiums, and the majority of the classes were well filled. The only exhibitor of six specimens of *Lilium lancifolium* was Mr. Baines, gardener, Southgate House, Southgate, who staged magnificent examples of the best varieties of this well-known and popular species. The plants were of an immense size, superbly flowered, and the blooms unusually good in quality. Two classes were provided for Dahlias, one for twenty-four, open to amateur and trade growers, and the other for twelve, open to amateurs only. In the first-mentioned class, Mr. C. Turner, Slough, was first with blooms of unusually high quality. The varieties of which the stand consisted were Rev. J. B. Camm, Monarch, Arbitration, Mr. Dix, Mrs. Saunders, Crimson King, Annie Neville, Egyptian Prince, Pioneer, Alexander Cramond, H. G. Quilter, Duke of Edinburgh, Flag of Truce, Toison d'Or, Incomparable, Charlotte Dorling, John Standish, Victory, Lady Gladys Herbert, Julia Wyatt, William Keynes, J. Neville Keynes, Prince Arthur, and Ovid. The first prize for twelve blooms was awarded to Mr. Burfitt, gardener to R. P. Taylor, Esq., Brixton. The competition for Asters was very spirited. In the class open for twenty, Mr. Rowe, The Rookery, Roehampton, was first. In a similar class for amateurs, Mr. R. Anderson, 21, Blyth Street, Bethnal Green Road, was first, with finely-developed and well-finished flowers.

INTERNATIONAL FRUIT SHOW AT MANCHESTER, September 3, 4, 5, 6.—This exhibition was, we are glad to say, most successful in every respect. The various productions filled three great structures. The principal display of fruit was in the old exhibition building, which is admirably adapted for the purpose. A fine mixture of plants and flowers was arranged in the picturesque tent originally designed by Mr. Findlay for the Whitsun exhibition. Here grass mounds and banks, and gravel walks, and a grand background of palms, tree-ferns, and other of the more massive conservatory subjects, gave full effect to the plentiful display of colour. It was the fairyland of this particular show. A third tent was erected for the occasion, and this, in its way, was a model tent. It was about 200 feet long and 60 feet wide, with broad central stage and broad side stages for plants, and abundant room between for the visitors. There was not a pole or tie, bar or beam, visible in this tent, and the canvas fell in beautiful parabolic curves. The various contributions were thus distributed into three great groups, the result being three distinct and splendid scenes in the most proper sense of the word horticultural, and from another point of view eminently attractive and delightful to the unprofessional eye. As the entries numbered over 2400, it was needful to prepare a considerable extent of house-room. In the evening of the first day, the Earl of Derby presided at a splendid banquet in the Hulme Town Hall, which was well attended in response to the invitations issued by the Council of the Manchester Botanical and Horticultural Society. The following evening, Mr. Shirley Hibberd presided in the same building at a dinner of horticulturists, which was attended by upwards of 200 of the leading members of the profession resident in various parts of the United Kingdom. The Manchester Botanical Society, under whose auspices the exhibition was held, will gain about £700; but, better still, there is a probability of Lord Derby's suggestion being carried out—namely, the clearing off the debt by subscription amongst the members, and his Lordship has set a noble example in putting his name down for £100.

CRYSTAL PALACE FRUIT SHOW, September 6 and 8.—The exhibition of Fruit, Gladioli, and Table Decorations at the Crystal Palace on these dates was of an exceedingly satisfactory character. The prizes were by no means liberal, but they were judiciously allotted, and the result was a capital display of Pines, Grapes, Melons, and outdoor fruit generally. As evidence of the spirited manner in which the prizes were contested, it may be mentioned that in some of the classes there were as many as thirty entries, and all the fruit of more or less excellence. Gladioli made a splendid display of colour round the bank of trees employed to intercept the view of the table about half-way up the nave. In the great open class for thirty-six spikes, Messrs. Kelway and Son, Langport, were first with a

magnificent stand consisting almost exclusively of varieties raised by themselves, the names of which are as follows : Pythis, Sclermene, Agathæa, Meyerbær, Orphée, Robert Fortune, Physcon, Unca, Vindaluis, Thescus, Vilule, Urbicus, Boreus, Serapis, Lady Bridport, Theodoceus, Harpatus, Typhisa, Bacchus, Duratius, Thymons, Eliza, Zameus, Parsee, Bollanus, Alpbenor, Orclous, Victoria, Phenius, Schedius, Sanguineus, Agathoclea, Demotratus. Messrs. Kelway and Son were the only exhibitors in the open class for twenty-four, and were deservedly awarded the first prize.

**THE CHISWICK TRIALS OF PELARGONIUMS.**—The following is a complete list of the Pelargoniums which have received first-class certificates at the Chiswick trials, 1873 :—**GOLDEN TRICOLOURS** : Beautiful for Ever, Colonel Lloyd Lindsay, Countess of Enniskillen, Madonna, Oriental.—**SILVER TRICOLOURS** : Circassian Beauty, Fair Rosamond, Lass o' Gowrie.—**SILVER-MARGINED** : Golden Brilliantissima, Laura.—**BRONZE-LEAVED** : Crown Prince, Emperor of Brazil, Freelight, Golden Harry Hieover, Mrs. Elliott, Reine Victoria.—**PINK-FLOWERED** : Amaranth, Bella, Cleopatra, Evans' Seedling, Mrs. Halliburton, Weibeck Nosegay.—**MIXED ZONALS** : Chunder Sen, Don Giovauni, Dr. Livingstone.—**CERISE AND SCARLET NOSEGAYS** : Begere, Forest Hill Nosegay.

**STORING POTATOES WITH LIME.**—Mr. James Knox writes from the Kingswood Reformatory, near Bristol : " Last year you published a letter regarding the non-extension of disease among potatoes when stored. In the hope that further attention may be paid to this by persons who, like myself, have charge of large institutions where economy is necessary, I write you this letter of my experience in the matter, now that the digging season is approaching. Last autumn I had seventy-two sacks of potatoes; these I collected in a heap, sprinkling each layer freely with lime, covering the whole with mould and a thatched roof. The consequence was I had not a hundred bad potatoes, and we found that the action of the moisture of a bad potato on the lime was that a shell was formed round it similar to an egg-shell, and contagion avoided."

**COMBINED LIME-KILN AND HOT-WATER APPARATUS.**—Preparations are now being made to heat the whole of the forcing and other houses now in course of erection in the new kitchen-gardens at Hatfield, the seat of the Marquis of Salisbury, on Cowan's compensatory system, which consists in the combination of a lime-kiln and hot-water apparatus. A new kind of boiler is in course of manufacture expressly for the purpose. Mr. Bennett had at one time decided to use either the Gold Medal or Witley Court boiler; but, wishing to give lime-kiln heating every possible chance of success, a boiler, invented by Mr. Cowan, will be used for the purpose.

**HOW TO WATER PLANTS.**—In reference to this matter Mr. Mechi says :—" The sum of our experience in watering amounts to this—that thorough soaking of the ground two or three times a week is much better than the same amount of water applied in dribblets daily, only sufficient to wet the upper surface, but not the under strata of earth contiguous to the roots. Cold spring water should, before applying it to a heated soil, be allowed to stand exposed to the sun and air for a few hours. The colder the water is, and the warmer the soil, so is the necessity of applying it in abundance; for it is evident, though we cannot explain it, that the result produced upon plants by applying cold water to the soil, when at a high temperature, unless so copiously applied as to saturate the soil completely, is fatal to tender or weakly plants, and often less or more injurious to strong or healthy ones."

**EFFECTS OF VEGETABLE PERFUMES ON HEALTH.**—An Italian professor has made some agreeable medical researches, resulting in the discovery that vegetable perfumes exercise a positively healthful influence on the atmosphere, converting its oxygen into ozone, and thus increasing its oxydizing influence. The essences found to develop a quantity of ozone are those of cherry, laurel, cloves, lavender, mint, juniper, lemon, fennel, and bergamot; those that give it in smaller quantity are anise, nutmeg, and thyme. The flowers of the narcissus, hyacinth, mignonette, heliotropes, and lily of the valley, develop ozone in closed vessels. Flowers destitute of perfume do not develop it, and those which have but slight perfume do not develop it only in small quantities. Reasoning from these facts, the professor recommends the cultivation of flowers in marshy districts, and in all places infested with animal emanations, on account of the powerful oxydizing influence of ozone.



## TO CORRESPONDENTS.

**THE ORIGIN OF FAIRY RINGS.**—*A Young Botanist.*—The origin of every fairy ring is a fungus, and the *agarics* are those which most commonly give rise to them. In the decay of a fungus, a large amount of phosphates is returned to the earth, and the grass which was originally displaced by it takes possession of the spot, and the phosphates deposited there furnish it with a rich manure, in which it grows more luxuriantly than elsewhere. In the meantime, the fungus has distributed its spores in a circle, and when this circular growth of fungi passes away, the grass takes possession of the first ring so formed, and its vigorous growth gives it the rich dark colour by which it is distinguished from the surrounding herbage. The fungi which formed the first ring decay in their turn, and scatter a fresh ring of spawn outside the first, their growth being always towards the soil on which there have been no fungi; while the grass regularly follows, and thus the ring grows larger year after year. It would occupy many of our pages to follow the explanation into all its details, and we must therefore beg our correspondent to remain content with this brief reply. We may, however, add, that edible fungi are very commonly found on fairy rings, and are associated with them in the minds and experiences of those who hold to the ancient notion of the fairies dancing at night on these, their magic circles.

**ANTS.**—*Eta, Chingford.*—A large number of ants may be destroyed by pouring boiling-water over the nests. Guano sprinkled in thin rows will also banish a considerable number from the house. One of the most effectual ways of clearing the house of ants is to procure a few pieces of coarse sponge, and lay them in the earthenware saucers in which flower-pots are usually placed, then sprinkle powdered loaf-sugar over the sponge. The ants, attracted by the sugar, will crowd into the sponges, and may then be destroyed by immersion in hot water. After this the sponges can be pressed quite dry and sprinkled with sugar, and the process can be repeated until the house is cleared of the ants.

**FERNS.**—*Mrs. D.*—As the window is on the shady side of the house, ferns would, with proper attention, do exceedingly well. A few of the best of the greenhouse kinds suitable for the purpose, are :—*Adiantum cuneatum*, *Pteris serrulata*, *Nephrolepis tuberosa*, *Asplenium bulbiferum*, *Cyrtomium falcatum*, *Pteris scaberula*. The following hardy sorts will also be useful :—*Adiantum pedatum*, *Asplenium marinum*, *Athyrium filix femina* Plumosa, *Lastrea filix mas cristata*, *Polypodium vulgare cambricum*, *Polystichum angulare grandidens*, *P. a. proliferum*, *Scolopendrium vulgare crispum*, *S. v. endivafolium*. Some of the palms and the India-rubber plants would also do exceedingly well in the window; the best palms are *Corypha Australis*, *Chamærops humilis*, and *Seaforthia elegans*.

**FERNS FOR CASE.**—*Mrs. D.*—*Adiantum capillus veneris*, *A. cuneatum*, *A. fulvum*, *A. setulosum*, *Asplenium bulbiferum*, *A. flabellifolium*, *A. formosum*, *A. lucidum*, *Davallia bullata*, *D. tenuifolia stricta*, *Doodia caudata*, *Lycopodium palmatum*, *Nephrolepis tuberosa*, *Pteris cretica albo lineata*, *P. scaberula*, *P. serrulata*, *P. s. cristata*, *Trichomanes radicans*, *Selaginella denticulata*, *S. stolonifera*. The ferns must be screened from the hottest part of the day during the summer, or they will suffer severely. This of course can be managed very easily by drawing the blinds down or laying a newspaper over the case. In windows facing the north, the ferns must be fully exposed to the light.

**APPLES AND RASPBERRIES.**—*P. P.*—The apples you mention are the last of the early sorts, and there are no other sorts so desirable. One variety mentioned is later than the others. With regard to the raspberries, Carter's Prolific, McLaren's Prolific, and Antwerp, are the best of the summer-bearing varieties, and as you have them already, you ought to be able to obtain an abundant supply of fruit at the proper season.

**LILYUMS.**—*Constant Reader.*—All the varieties contained in the list referred to are not suitable for amateurs, but there are a considerable number that are most valuable for garden decoration.

**PLANTING VINERY.**—*F. S.*—Muscats will not do much good in the same house as black Hamburgs. But we see no difficulty in your growing them well in an outside border, if it is properly made, provided the vines have a house to themselves, and you adopt some means to prevent the borders becoming too wet, should there be an over-abundance of rain through the summer. The borders must be



protected through the winter with a good thickness of leaves, and thatched to prevent them blowing about, and at the same time to throw off the rain and snow. In the house devoted to black Hamburgs plant Buckland sweetwater in the place of the muscats. You might also add a plant of royal muscadine, which is a good serviceable white grape.

**CYTISUS.** — *Lady Gardener.* — Top-dress with good turfy loam and a little decayed manure, and then, after they have done flowering, cut them back, and directly they begin to break shift into larger pots. Use good fibry loam three parts, mixed with one part thoroughly-decayed manure or leaf-mould. Let the pots be thoroughly well drained, and place the plants out of doors in the summer to ripen the growth, and use the soil in a moderately rough condition, for they will do very little good in close stuff.

**AUTUMN PROPAGATION OF ROSES.** — *Rosarium.* — To strike hybrid perpetuals in the open ground is not a difficult though an uncertain method. The way to do it is to prepare a sheltered border with a dressing of leaf-mould and sharp sand, equal parts, and raise it a foot above the level. Tread this firm, and let it slope away to carry off water quickly. On the 1st of October take ripe cuttings and cut them in lengths of six inches, removing all the soft, sappy tops of the shoots. Take off as many leaves as will make three inches of the cuttings bare at the bottom, and cut the base of each by a clean cut close under the bottom joint. Now put these in the ground three inches deep, in rows a foot apart, and the cuttings four inches apart in the rows, and tread them firm. If the weather is bright and dry, sprinkle them with water every morning, and keep shaded, but do not water the bed, as if only moderately damp that will suffice. As there is generally a copious deposit of dew at night, the cuttings will probably want but little water, and should only have enough to keep them fresh. Many of them will root, and in March begin to grow; many will rot during the winter. If a hard winter follows, they may be saved by covering with frames or canvas. Where frames are at hand, and a gentle hotbed can be made up, the same method of making the cuttings may be adopted; but the bed should consist of equal parts loam, leaf-mould, and sharp sand, and be six inches deep over the fermenting material. They must be kept in the frames all the winter, and have air during fine weather. In cocoa-nut waste roses root quickly, but as soon as possible should be potted off, and put in the greenhouse or a pit, and the stuff for the first potting should have a considerable proportion of leaf-mould and sand in it. Failures in the use of the Manetti stock have, in almost all cases, been the result of a mistaken estimate of its uses. It will not make mop-headed standards, such as are now grown by budding briars on the upper branches. The bud should always be entered close to the collar of the stock, in order that, in the future planting, the rose may be covered with soil without plunging too much of the true bark of the stock. When worked with suitable sorts it is a prodigious rooter, and will feed a fast-growing rose on poor soils, where it would perish if on its own roots. But, by planting the entered bud below the surface the next season after budding, the rose makes roots of its own and so grows more naturally. There is, in fact, less of that disagreement between bud and stock which in many cases is the cause of the failure of worked roses. It does not follow, however, that if planted above the surface, the bud should fail, and we should not advise you to move the plants until they have gained strength.

**HOLLYHOCKS IN WINTER.** — *Florist.* — Double hollyhocks give plenty of seed, and the plants raised from well-saved seed come pretty true to the parent. Take off the pods when ripe, and hang them in bunches in a dry room till March; then rub them out, and sow in shallow pans in a gentle heat. Cut down the stems as soon as you have got as much seed as you require. No mulching till spring, for damp at the collar often causes the destruction of hollyhocks in winter. The leading growers advise the removal of the mould round the neck of the plant, and filling it in with silver-sand. On the damp, clay soil it will not be safe to trust fine hollyhocks in the open ground all winter, and they should be taken up in October, and potted and kept in frames till March.

**BULB QUERY.** — *F. H.* — All soft bulbs, such as lilies and crown imperials, should be kept out of the ground as short a time as possible. Small bulbs, in the way of lachenalias and anomathecas, may be shaken out of their pots, when the foliage has quite died down, and stored away in bags till they begin to break naturally, when they must be again potted, and but just covered. The

October.

reason why many lose their stock of such things is because they drench them with water immediately after potting, whereas, until they have made pretty good roots, they should have very little moisture. Where there is any doubt, however, keep them in the pots quite dry, and laid on their sides; as soon as they move, re-pot them, handling them tenderly, so as not to bruise their new roots.

### TRADE CATALOGUES RECEIVED.

BARR & SUGDEN, 12, KING STREET, COVENT GARDEN, LONDON, W.C.—*Descriptive Catalogue of Bulbs and Plants for Winter, Spring, and Summer Flowering.*

T. BUNYARD & SONS, MAIDSTONE, KENT.—*Select List of Dutch Flower Roots.*

— CANNELL, STATION ROAD, WOOLWICH.—*Autumn Catalogue of Florists' Flowers, Bedding Plants, etc.*

CARTER, DUNNETT, & BEALE, 237 & 238, HIGH HOLBORN, LONDON, W.C.—*Carter's Catalogue of Flower Roots, Fruit Trees, and Roses.*

H. CURTIS & CO., DEVON ROSERY, TORQUAY.—*Descriptive Catalogue of Selected Roses, etc., 1873-74.*

W. CLIBRAN & SON, OLDFIELD NURSERY, ALTRINCHAM, CHESHIRE.—*Catalogue of Dutch Flower Roots, etc.*

W. CUTBUSH & SON, HIGHGATE, LONDON, N.—*Bulb Catalogue.*

DICKSON, BROWN, & TAIT, 43 & 45, CORPORATION STREET, MANCHESTER.—*Autumn Catalogue of Dutch and French Flowering Bulbs.*

F. & A. DICKSON & SONS, 106, EASTGATE STREET, MANCHESTER.—*Catalogue of Dutch Flower Roots, etc.—Catalogue of Select Roses, etc.*

DICKSON & ROBINSON, 23, MARKET PLACE, MANCHESTER.—*Catalogue of Hyacinths and other Dutch and French Flowering Bulbs.*

DOWNIE, LAIRD, & LAING, STANSTEAD PARK, FOREST HILL, LONDON, S.E., AND 17, SOUTH FREDERICK STREET, EDINBURGH.—*Descriptive Catalogue of Dutch Flower Roots.*

JOHN HARRISON, DARLINGTON.—*Catalogue of Flower Roots.*

HOOPEE & CO., COVENT GARDEN MARKET, W.C.—*Catalogue of Autumn Bulbs, etc.*

LAWSON SEED AND NURSERY COMPANY (LIMITED), 1, GEORGE IV. BRIDGE, EDINBURGH, AND SOUTHWARK STREET, LONDON, S.E.—*Catalogue of Dutch Flower Roots, etc.*

JOHN MATTHEWS, ROYAL POTTERY, WESTON-SUPER-MARE.—*Illustrated Catalogue of Pottery, etc.*

MILLIGAN & KERR, DUMFRIES.—*Select Catalogue of Dutch Flower Roots, Fruit Trees, Roses, etc.*

R. PARKER, EXOTIC NURSERY, TOOTING, S.W.—*Catalogue of Hyacinths and other Bulbous Roots, Alpine and Herbaceous Plants, Fruit Trees, etc.*

WILLIAM PAUL, WALTHAM CROSS, LONDON, N.—*Bulb Catalogue.*

GEORGE POULTON, ANGEL ROAD, EDMONTON, LONDON.—*Catalogue of Dutch Flower Roots, Vegetable and Flower Seeds, etc.*

W. ROLLISSON & SONS, TOOTING, LONDON, S.W.—*Catalogue of Cape, Dutch, and other Bulbs, Roses, etc.—Supplement to General Catalogue.*

ANT. ROOZEN & SON, OVERVEEN, NEAR HAARLEM, HOLLAND.—*Catalogue of Hyacinths, Tulips, Crocus, and other Dutch and Cape Bulbs.*

WILLIAM RUMSEY, JOYNING'S NURSERY, WALTHAM CROSS, LONDON, N.—*List of Bulbs, Hardy Plants, Roses, etc.*

SUTTON & SONS, READING.—*Autumn Catalogue of Bulbous Flower Roots, Plants, Seeds, etc.*

CHARLES TURNER, ROYAL NURSERIES, SLOUGH.—*Catalogue of Hyacinths, Narcissus, Tulips, etc.*

T. S. WARE, HALE FARM NURSERIES, TOTTENHAM.—*Catalogue of Bulbs and Hardy Tuberos-rooted Plants.*

B. S. WILLIAMS, VICTORIA AND PARADISE NURSERY, UPPER HOLLOWAY, LONDON, N.—*General Bulb Catalogue—Catalogue of Fruit Trees, Roses, etc.*







## THE ALPINE ROSE.

(With coloured plate of *Rhododendron Chamæcistus*.)

THE general notion of an "alpine plant" is a procumbent herbaceous tuft, more or less moss-like in texture, and with not a semblance of wood anywhere about it. This erroneous idea arises from the custom of limiting the ordinary selection of so-called alpine plants to such as grow well on rockeries of the ordinary type, and in common herbaceous borders. In the higher alpine regions grow many arborescent plants, and in fact the true alpine flora comprises trees and shrubs, as well as herbaceous subjects. They all agree, however, in a cushion-like growth; the trees do not become trees, but spread out and keep close to the ground, and incline rather to form a mat of branches touching the stones than a spreading head borne on a distinct stem, as a proper tree would grow upon the plains. Two very pretty examples of the higher alpine timber may be easily obtained and grown in any garden. These are the polar willows, *Salix reticulata* and *S. herbacea*, which are true trees, though they spread on the surface of the ground, and never show the slightest indication of a tendency to the formation of a stem or a head, or any other features by which usually a tree is recognized and distinguished as such. The first-named of these polar willows will make hard, woody shoots, as thick as a black-lead pencil, and these shoots run upon the surface and emit roots and leaves as they go. The other is of a more wiry and herbaceous habit, but when closely observed, is found to be a genuine tree like the other.

It may be worthy of observation, that between trees properly so-called, and herbaceous plants properly so-called, the differences are easily determined, and yet we can find a number of plants that occupy a midway place between them; and these teach us that the differences that appear so decisive at the first consideration are differences of degree only, and not of kind. Let us ask, for example, to what class are the perennial iberis and the yellow alyssum to be assigned. We call them herbaceous plants, but they make hard wood, and have the habit of dwarf shrubs, and in fact are shrubs; that is to say, miniature trees. What can be more decidedly herbaceous than a clove pink, when regarded in its babyhood? yet, if we leave a clove in the ground for ten years, and it happens to enjoy health all that time, it will form woody stems as thick as a man's thumb, and as hard as any one would desire for a walking-stick. Thus, modes of classification that appear to us sufficient to mark out dividing lines in the kingdom of nature, shrink away when confronted with facts, or at least retire out of view, to remain until wanted for purposes of temporary convenience, when it may happen that a faulty classification is better than no classification at all.

But what has all this to do with the alpine rose? Not much, perhaps, but we were led into the little disquisition by calling to mind how many of the alpine herbs approach to the tree-like in habit and

texture, and many of the alpine trees resemble herbaceous plants in some of the more prominent of their characteristics.

The Alpine Rose is the *Rhododendron chamæcistus*, of which a life-like portrait is herewith presented. It grows from four to six inches high, branches freely, and is densely clothed with small leaves of thick texture, which are of a lively green in early summer, and acquire delicate hues of red and bronze in the later days of summer, the season of the plant being short, like the season of its native Tyrolean hills. The flowering of this plant is always an event for the earnest cultivator of alpinists, for although it flowers on the mountains as freely as the pretty ling does on our gritstone moors, it is shy to flower when under cultivation. Those who have seen it "at home," densely dotted with its delicious *Kalmia*-like flowers, would barely recognize it in the rock garden, where it is usually seen in an attenuated state of growth, producing but few flowers or none at all.

The alpine rose is not a difficult plant to manage, if we begin with it in the right way. Those who are familiar with the acres of double flowering heaths that may be found on the chalk downs above Findon Pass, and around the conspicuous ring of Chanctonbury, in Sussex, will not be startled when we tell them that this *Rhododendron* requires a limestone soil, and is really found growing wild, with its roots deep seated in crevices of calcareous rocks. It is generally understood that calcareous matters are poisonous to ericaceous plants, and to a very great extent this is true. But there are exceptions, and just as the lovely double and pink and blush and white varieties of *Calluna vulgaris* and *Erica tetralix* grow luxuriantly on the chalk downs of south Sussex, so, on its native hills, *Rhododendron chamæcistus* usually attains its finest form when rooted deep in the limestone.

There are two other so-called alpine roses, namely, *Rhododendron hirsutum* and *R. ferrugineum*, which are of more robust habit than the alpine rose proper, but agree with it in loving limestone. And it would be no violation of bad taste in this connection, to think of the "Rock Rose," *Helianthemum vulgare*, for that loves the soil and aspect that suit our pretty little *Rhododendron*. It may be that some of our readers have never seen the rock rose growing wild, but they may easily do so when its season returns. In Bonsal Dale, one of the loveliest of many lovely dales in northern Derby, and in the dales that open out therefrom, may be seen miles of the *Helianthemum* in the month of July, the flowers surpassing the finest of buttercups in beauty, and the plant making the close, dense, tufted, and *refined* growth peculiar to the race we call "alpinists." Here it thrives on the mountain limestone, keeping company with the lily of the valley, of which there is any quantity in this dale of dales, which has for its principal ornament a waterfall not so wide as a man could stretch with his arms, that falls as straight as a tightened cord for 200 feet, and is as cold and pure as newly melted mountain snow.

For this class of plants—for, indeed, all the alpine shrubs—a rockery should be formed of large blocks of limestone, put together

so as to allow a large body of soil between, and this should consist of peat and broken stone and sand in about equal proportions. Mere crevices that the hand could explore are of no use at all; they should be deep enough to hold a man by the leg if his foot slipped into one, and should open below into beds of broken stone and peat and sand, and be filled with the same sort of mixture. Having made a good rockery with a northern aspect for coolness, it will be desirable to ensure a regular dribbling of water all over it from May to August, not indeed to keep it flooded or boggy, for the drainage should be perfect, and the dribbling constant, but to keep the whole mass of rock and soil moist, for the roots of these shrubs are never dry in their own mountain gardens. We cannot create an alpine climate, and the more we see of alpine plants under cultivation, the more thoroughly convinced we are that the question of climate is of comparatively little consequence; but we can shut out from them the meridian beams of the midsummer sun, and ensure to their roots, all the summer long, the kindly moisture which is so essential to their well-doing.

The following is a list of alpine shrubs that require the same treatment as the alpine rose, and are worthy to be associated with it as gems of "purest ray serene." To plant them on a little rockery would be murder—they want light, and space, and air, and a good body of peaty soil. *Andromeda tetragona*, *Azalea amœna*, *Calluna vulgaris* fl. pl., *Cotoneaster thymifolia*, *Cytisus sessilifolius*, *Daphne alpina*, *Empetrum nigrum*, *Genista tinctoria* fl. pl., *Helianthemum vulgare* in variety, they do well in shade, but better in the fullest sunshine; *Menziesia polifolia*, *Polygala chamæbuxus*, *Ruscus hypoglossum*, *Salix reticulata*, *Vaccinium amœnum*, *V. ovatum*, and *V. stamineum*.

S. H.

## RHODODENDRON VENUSTA.—EARLY FLOWERING RHODODENDRONS.



YOU ask for information respecting the *Rhododendron Venusta*. I believe it to be a distinct species; and I am acquainted with two varieties. I first saw the *Venusta* flowering in a friend's drawing-room in March, 1845. It had been purchased from Messrs. Lucombe & Pince, near Exeter; and from their nursery was immediately procured the parent plant now growing at Ashbury. The foliage is of a dull green, the underside brown, and often curled back at the edges. The flower opens rose-colour, and turns paler in a day or two. The time of flowering varies with the season, and is very protracted—some years beginning in November, and ending early in May. I have known it in full beauty at Christmas, and any time through January and February, generally with the snowdrops. It is often spoilt with a single night's frost; yet, even after continuous frost and snow, a few days' thaw is sufficient to bring forth the buds fit for cutting and opening in water.

November.

Two or three years later, a second plant of the *Venusta* was obtained from the late Mr. Veitch, of the Heavitree Nurseries, near Exeter, and proved a variety of Pince's *Venusta*. The growth of the plant is stiffer; the colour of the flowers far more brilliant, and of a darker rose-colour; and before they are fully opened, the stamens and pistil project decidedly beyond the corolla, giving it a peculiarly pointed appearance. It is the handsomer of the two, but it blooms later—not till February or March; it passes more quickly, and will not retain its beauty in water longer than a few days or a week; whereas Pince's *Venusta* will keep for three or four weeks without withering. It is singular that Veitch's *Venusta* is attacked by some kind of fly; and it is rare, on a sunny day, to find a flower fully opened without two or more holes pierced through the lower part of each tube.

Is it usual for the *Rhododendron Pictum* to flower in winter? A plant was procured, in 1861, from the late Mr. Veitch, of Exeter, labelled "*Pictum*." For three or four years it grew luxuriantly, without flowering. At last, two or three fine blooms appeared in the month of February; and since then it has always bloomed within a week or two of the same time. For the last two or three winters there have been hundreds of flowers on the single plant in full beauty at once. Pure white, deeply marked, truss conical.

I hope to have the pleasure of sending you specimen flowers of each kind when the season arrives. J. H. W.

[*Rhododendron Pictum* is a garden variety of the *Ponticum* section. There are many equally good that flower equally early; as, for example, *Jacksoni*, *Altaclarensæ*, *Hendersoni*, *Noblecanum*, *Lady Duckworth*, *Stamfordianum*, *Perspicuum*, etc., etc. In the "kind climates" these early-flowering varieties are invaluable for the flower-garden; but elsewhere—and, to be definite, let us say near London—they are of little use, except to grow in pots for the conservatory. We again thank our friends for the aid afforded in illustrating the subject of "Beautiful Trees for Kind Climates," and beg of "J. H. W." to appropriate of our thanks a Benjamin's portion.—Ed. F. W.]

## NEW ROSES FOR 1873-4.

BY W. D. PRIOR, ESQ.



AN instalment of the New Roses has come to hand, and will, no doubt, be followed shortly by the whole flock. In face, however, of the superlatively inferior quality of most of the varieties issued last year, it ought to be a grave consideration with English purchasers whether they will experiment for some little time in the new French roses, leaving our brethren across the Channel to test their productions at their own expense. We could then easily obtain such as we required of approved value.



The lists already received comprise those of Messrs. Ducher; Joseph Schwartz, successor to Guillot Père; and Liabaud. All of these are Lyons raisers, of fair repute; the first and last having given us some good roses—the second having succeeded to an establishment of the highest character. Without wasting time, we shall give a literal translation of their own descriptions:—

#### DUCHER.—TEAS.

*Aureus*.—Plant of moderate vigour; branches short, strong; flowers medium, full, well-formed; copper yellow; very effective.

*Ophelia*.—Plant very vigorous; flowers medium, full, well-formed; clear yellow; very fine.

*Helvetia*.—Plant very vigorous; branches strong, upright; flowers large, very full, well-formed; salmon, centre rosy peach.

These read promising; but, bearing in mind how seldom any acquisition is brought forth in teas, they must be looked for rather with hope than lively expectation.

#### HYBRID PERPETUALS.

*Maria Thérèse*.—Very vigorous; globular; very full, well-formed; flowering freely. The colour is omitted in this description.

*Jean Dalmais*.—Very vigorous; very large, full, well-shaped; clouded rose; very fine.

#### JOSEPH SCHWARTZ.—HYBRID PERPETUALS.

*Olga Marix*.—Very vigorous; branches upright; foliage deep green; five to seven leaflets; flowers medium, full, well-shaped; superb flesh-white.

*Perfection des Blanches*.—Vigorous; upright; shining green foliage; medium, full, well-shaped; pure white; magnificent.

#### LIABAUD.—HYBRID PERPETUALS.

*Baronne Vittat*.—Vigorous, strong, erect; copious foliage, clear green; very large, full, globular; flesh-rose; magnificent.

*Madame Rival-Verne*.—Very vigorous; slightly branching; strong and numerous spines; very ample foliage, deep green, large, very full; salmon shaded carmine-rose.

#### WILLIAM PAUL.—HYBRID PERPETUALS.

We turn from these a little more hopefully to Mr. William Paul's New Roses for 1874, certain that we have to deal with a conscientious master of the hybridizing art. They are as follows:—

*Diana*.—Fine, clear, deep pink, of cupped form; large, and very double. A good, hardy rose, with handsome glossy foliage.

*Peach Blossom*.—Delicate peach-blossom, a new and most desirable colour amongst hybrid perpetuals; large, full, and of fine shape; growth vigorous.

*St. George*.—Blackish crimson; large, full, of good form, and foliage fine. A splendid new dark rose.

We have here at least no exaggerated and high-flown descriptions, and may, therefore, more confidently trust to their truth. "Good wine needs no bush," as the old saw saith.

## THE TREE DAISY.



AUSTRALIA produces several bushy plants of the composite order, the flowers of which closely resemble those of our common daisy. As a rule they are not sufficiently ornamental to be worthy of a place in our plant-houses, nor sufficiently hardy to endure the rigours of our winter season. The one here figured, *Olearia dentata*,



THE TREE DAISY (*Olearia dentata*).

from the "Botanical Magazine" (tab. 5973), is one of the handsomest

and hardiest, and may be entered on the select list of "beautiful trees for kind climates." Dr. Hooker says, in speaking of the tree daisies, "Many of them would thrive well and form great ornaments in the gardens in the mild part of the West of England," and adds, that "the present species forms a fine bush in the Scilly Isles." This tree daisy is a native of the east coast of Australia, from Port Jackson, the Blue Mountains, and Illawarra, southward to Twofold Bay. The plant is not known in English nurseries.

### ON RAISING ROSES FROM SEED.



HERE is a good show of scarlet "heps" now on the wild roses, and the roses of the garden are not altogether destitute of similar adornments. It will be reasonable, therefore, to offer a few practical remarks on the raising of roses from seed.

It is generally believed by amateurs that to raise seedling roses is a most difficult and tedious business; but that is a mistake. There can be nothing easier. To obtain new and fine varieties worth naming is another matter, but it would be a grand mistake to suppose that elaborate manipulations in hybridizing, or as we should more properly say, crossing, are necessary. Very few of all the roses that are in the catalogues have been obtained by systematic crossing; they have for the most part been obtained in the same way as good geraniums, good carnations, good dahlias, and good chrysanthemums are obtained, by simply saving seed from the best varieties and carefully raising plants therefrom. It is, nevertheless, a fact that, as a rule, systematic raising gives the best results, and the rosarian may therefore be properly advised to operate on selected flowers with a view to obtain seed of a character predetermined by the operator. If he is not disposed to make so refined a pastime of raising seedlings, he may be content to save seed as he can get it, and take his chance of what it may produce.

Our climate is not quite favourable to the raising of new roses, and that is the principal reason why we have to depend upon the rose-growers of sunny France. Nevertheless, the many splendid varieties that have been raised by Messrs. Paul, by Mr. Ward, and others, not only prove the possibility, but afford abundant encouragement to the English amateur, who in a fine autumn may ensure abundance of good seed; and in a wet and cold autumn must be content to rest from his labours on getting perhaps a score of ripe heps instead of hundreds or thousands. How then is the seed to be obtained? The simplest mode of procedure will be to plant out in a sunny position, on rather poor soil, a selection of the very finest roses known. The site should be dry and breezy; if shut in by trees, or in any degree swampy, it will not produce good seed. A luxuriant growth is not to be desired, in fact a somewhat starving and roasting condition favour seed production, but the seed-producing plants should not be starved to the extent of impairing their

health; for above all things we want vigour in roses, and debilitated parents are not likely to produce robust progeny. Every inferior rose that can be got at within a mile of the seed ground should be grubbed up and burnt, and consequently the seed grower must purify his own garden of such, and that will be no hardship, for the best roses, anywhere and anyhow, must be better than the worst. In the first place the selection should comprise all the first-class typical roses; next all the most distinct and beautiful of the several classes. The collection should be comprehensive, save and except in this respect, that every variety known to have a weakly constitution, however highly esteemed for its flowers, should be carefully excluded. We have too many weak-habited varieties already, and the English raiser should as carefully as possible guard against adding to their number. In selecting for the plantation, any kind of roots will do, and it might be a saving of expense to take from a nursery all the ugly plants of the best kinds, because the shape and altitude are matters of no consequence at all, if the object is seed-saving merely.

It is an important matter to ensure that the seed is ripe before it is gathered, and on this point mistakes may easily be made. It happens with heps as with grapes, that they often acquire a fine colour in advance of perfect ripening, and, as a rule, a hep is not ripe when it is of a brilliant red colour, and if the harvesting of good seed is our object we must wait until the heps are black, or nearly so. It may be proper to remark here, that the seed-producing trees should have a little but not much care. Above all things they must be kept in good health, and any that show a persistent tendency to mildew should be rooted out and burnt. They will require no more pruning than suffices to keep them in order, for the more flowers they produce the better. The novice may reasonably suppose that better seed could be obtained from a few first-class flowers, than from allowing the flowers to come freely and to lose somewhat of their substance and doubleness. But the fact is just otherwise. By a somewhat starving system of cultivation, which results in rendering many first-class varieties "goggle-eyed," through deficiency of petals, we secure a fine sample of seed, from which, in all probability, there will result a fair proportion of seedlings characterised by excessive fulness, for the *doubling tendency is in the strain*, and will come out at last if encouraged by good cultivation.

The heps having been gathered may be treated in several different ways. The most simple is to stratify them in layers with sand in a damp place, and leave them until March, and then to rub out the seeds and sow in the open ground in rows two feet apart, the seeds being six inches apart in the row. Another simple mode of dealing with them is to sow the complete heps in rows as soon as gathered, without any attempt to separate the seeds from the pulp. This is Nature's way of raising seedling roses, and although it is a rough way, it has this advantage, that the seedling plants have their proper vigour, for the seed is buried as soon as it is ripe. The result of this method is that the seedlings rise in clusters, and therefore the heps should be put at least a foot apart, in rows two feet apart.

Another method of procedure is to break open the heps and



separate the seeds and sow in pans and boxes, and keep them in frames or pits, or under the stage of a greenhouse, all the winter. This is the *best* method, for it ensures early germination, without drying of the seed, and gives the cultivator command of the seedling plants from the first. In such a case we should prefer to pot all the earliest plants and flower them in a cool, airy greenhouse, and plant out all the late ones, and wait a little longer for their flowers. Now, the inexperienced amateur will want to know how long we must wait to see the flowers of the seedlings. Well, comparatively speaking, no time at all. If seedling roses start early, most of them will flower the first season, and the remainder will flower the second. We have flowered seedlings in pots in forty-five days from the date of sowing the seed, but as a rule they need five or six months growing before they flower, and those that flower latest are generally the best. Probably some of those that flower first deserve to be saved, for they present lovely little flowers, sometimes quite novel in colour, and as round as cherries, and not much larger. Some day a prophetic amateur will be wise enough to keep some of the best of the most precocious seedling roses, and by this conservative procedure provide us with a companion rose to the Lawrence or Fairy roses, which have been too much overshadowed by the thumpers and thunderers of the exhibition table.

The raiser of seedlings must make much of promises. Whatever promises well must be kept and propagated. A seedling rose never declares itself as "first in the throng" by its first flower, or even by its first half-dozen. Remember that, all you aspirants for floral fame. You must have prophetic insight, or you will be continually consigning to the rubbish heap possible competitors with Marechal Niel, or Gloire de Dijon, or Baroness Rothschild, or Victor Verdier, or something else. Let us suppose now that you have flowers of promise. In the first place bring pencil and note-book, and give the plant a provisional name or number, and make an entry descriptive of both leafage and flower, and a very rough and hasty description will suffice. Next adopt whatever measures are most convenient for its multiplication. You may enter a few buds in brier or Manetti stocks, and you may also put a few cuttings or eyes in pans of sandy soil, over a gentle hot-bed, to ensure a few plants on their own roots. When the cool autumn days return you must separate the plant from the crowd, and give it a separate place on rich soil in an open situation, and it must be moderately pruned back to ensure bloom the next season from the ripest wood, and thus, giving it a good chance, you may hope for a reward of your labours. The second bloom will surpass the first, and not unseldom the third bloom will surpass the second; but in the third year your seedling will probably be at its best, and you may make up your mind whether it is best to keep it, sell it, or burn it. Be not troubled if after the careful trial of three years you have to burn many; but notwithstanding such a painful expectation, do the thing well, or do not dabble in seedlings at all. You must make stock of every promising plant, and you must courageously destroy all the evidently inferior ones, and of these you will have plenty. In the event of a

seedling turning up a trump, what an advantage it will be to have a ready made stock of it; and on the other hand, what a disadvantage will you be at if a seedling comes out grandly in the second or third year, and you find you have but one plant, the propagation on promise having had no attention.

It may be well to offer a few advices to amateurs who propose to "make assurance doubly sure" by careful manipulations of selected flowers. If you have the patience to examine the pedigrees of roses, of which, by the way, we have very few that are authentic, you will find that the pollen parent is the most important of the two. The old rule of going to a flower of high colour for pollen, and to one of good form for seed, has been considerably modified by recent experiments and observations. Look to your pollen parent first of all, and, generally speaking, think of *form*, *substance*, and *colour*, without reference to doubleness, because amongst the seedlings from varieties that are strong in form, and substance, and colour, a goodly proportion of thoroughly double flowers will come, for, as a matter of fact, doubleness is more easily obtained than any other quality. This is not orthodox teaching, but it is true. Hitherto writers have made it a point that seeds should be obtained as much as possible from double flowers. Our advice is that you starve the doubles into singles, looking for form, substance, and colour, without reference to doubleness, and trusting to your own power to *make petals* when you want them, provided you secure seedlings remarkable for perfection of form, distinctness or perhaps richness of colour, and the substance of a calf skin or piece of pile velvet, or the parchment of a big drum of the very best maker. Pray don't be in a hurry about doubleness, so long as you take seed from first-rate varieties, for the doubleness is in the blood, and will come out as time and food and sunshine contribute to the stamina of the plant. S. H.

## WINTER FLOWERS FOR THE CONSERVATORY.

BY JOHN BURLEY, F.R.H.S.,

Hereford Road, Bayswater, W.



TO have a good display of flowers in the conservatory during the winter months is by no means an easy matter, and it requires some years of practice to discover the most suitable things for winter decoration unless advised by those who have had some experience in the matter. Knowing this I have thought a few observations upon the decoration of the conservatory in winter would be of considerable service to a large body of readers. In passing I would add that for many years past the character of our business has compelled us to devote special attention to winter flowers, and unusual facilities have consequently been enjoyed for arriving at correct conclusions respecting the merits of the most popular subjects adapted for winter decorations. I shall be as brief as the

nature of the subject will admit, and mention those things only which are specially adapted for small gardens.

To succeed the chrysanthemums which belong to the autumn, the autumnal-flowering Azaleas will be found valuable. One of these is known by the name of *Striata autumnalis*; the other is the old *Double Purple*. Both come into flower about November without any forcing in heat. The sweet little *Azalea amœna* and its companion *A. obtusa*, are also very early and have small rosy purple flowers. To follow these kinds, the old *Indica alba*, white; *Triumphans*, purple; and *Roi Leopold*, scarlet, should be kept in the forcing house. These are the best kinds for forcing for early work, and will be sure to flower freely.

The *Chinese Primula* will be nicely in flower from December onward. These should be sown about the end of April, and potted on and kept growing all the summer and autumn, shifting them as required. They require plenty of light and air when growing, and must never suffer for want of water in the hot days of summer.

A few *Cytisus racemosus* will be in bloom early, if they were pruned back after blooming last spring, and then partly shook out from the old soil, and repotted in some good sweet loam and rotten manure, so as to give them a start again into growth. The *Tropæolums* make a good show, especially *Ball of Fire*, which is one of the best for winter work. Nice plants may be had for this purpose by placing a few cuttings in pans or pots, about July, and keeping them growing on until they flower. *Violets* also may be had at this season; especially must I mention *Viola arborea*, *King of Violets*, and *Queen of Violets*, the last named being a large double white kind and deliciously scented. So also is the pale blue *Neapolitan* violet, and the curious *Striata*. These should have been plunged in pots all the summer, in a north border, and not under the drip of trees.

In country places, *Roses* at this season should be had in quantity for they are easily managed. All you have to do is to cut back a few pot plants of the common *China* roses, and such varieties of this class as *Fabvier* and *Cramoisie Supérieure*, in August, and keep them plunged out of doors until October, when they may be taken up and placed indoors; they will, in due course, be covered with buds, which will open in succession for some time. That excellent tea rose *Gloire de Dijon*, also that pretty noisette *Aimée Vibert*, and a few more of that class, will be also found useful. A capital late and early rose, and a rich rose too, is *Souvenir de la Malmaison*.

There are a few bright-berried plants that may be used with great advantage and effect at this season in the conservatory; I refer particularly to the female *Aucubas*, if fertilized. The common green-leaved female variety is one of the most valuable, for it is very neat, and usually produces a profusion of berries. *Solanums*, of sorts of the type of *capsicastrum*, especially *Weatherhill's Hybrids*. A few of these berry-bearing shrubs mixed up with fine foliage plants look cheerful and bright, moreover, such hardy plants as *Skimmia japonica* and *S. oblata* may be made useful in the conservatory at this season.

*Jasminum grandiflorum* is a very useful plant in the winter season, and the blossoms being white and very sweet-scented makes it very desirable for cutting from for bouquets, etc. This plant is easily propagated by cuttings in the spring. After the plant has done blooming let it be cut back, and repotted in a mixture of loam, rotten hotbed manure, sand, and leaf-mould, in about equal proportions. When the new growth is made, and, in fact, all through the summer, they should be kept plunged out of doors in cocoa-nut fibre, leaf-mould, or any similar light substance. Give them water when required, and in the autumn they may be lifted up and taken indoors, where all the winter they will be much prized for their delicious perfume and snowy blossoms.

The *Tree Carnations* are most valuable for winter blooming, and there is no difficulty in having flowers on them from September until the May following. But to have them in flower during so long a period, it will be necessary to have *strong young plants*, which were struck early in the year, and kept growing all the spring and summer. I must just mention that they require very little water during the dull days of winter; give them just enough to keep them moist, no more.

The old free-flowering *Coronilla glauca* may be had at mid-winter one mass of golden-yellow blossoms. It is very easily managed, and about as cheap as chickweed. It bears almost any knocking about without injury, but treated as recommended for jasminums, it will repay for the extra trouble by extra richness of bloom in the winter. It appears at all times to like a warm sunny spot with plenty of air, and to be kept at all times rather dry at the roots than otherwise. It is also moderately hardy, as it will bear eight or ten degrees of frost without any injury.

To follow in succession we have the *Cyclamen persicum* in its innumerable varieties of colour. They are very desirable for our purpose; for they are deliciously scented, and they continue to bloom in succession from Christmas to quite the end of April. After the plants have done flowering in May, they should be removed to the shelf of a greenhouse or to a frame, where they will have plenty of light and air. They should have little water given them, but beware of drying them up. In about six weeks, the corms will have a sound and ripe appearance, and the old foliage will be mostly withered. Then repot and start them into fresh growth. Have ready a mixture of good sweet turfy loam (the top spit from a meadow) one half, the other half to consist of equal portions of sweet powdery hotbed manure, leaf-mould, brown peat, and gritty sand. The plants may remain in the cold frame until the end of September, when they should be removed to the top stage of the greenhouse again, and close to the glass, where they may stay until they come into bloom, and are fit for decorating the conservatory.

The *Cinerarias* should be gradually coming into bloom after Christmas; these will continue gay for some months. The best way to obtain good varieties of these is to purchase a packet of seed from a good strain, and sow it in pans in the month of May, and when the young plants are strong enough, prick them off in



small pots, and keep them growing all the summer, shifting them into larger pots as they require it. They like a compost of two-thirds sandy loam and one-third rotten manure. They should be grown in frames all the summer, and be kept close to the glass, and have at all times abundance of air. They should also be kept well watered during the summer. Fumigate about once a fortnight, to keep them free from green-fly. Nothing more need be done to them until the autumn, when they must be removed to a place of safety from frost, but where they will receive plenty of air on fine days, and be kept safe on frosty nights.

Some *Epacris* will also be coming nicely into bloom in January. The cultivation of these plants is so well known that I will say but little about them. After they have done blooming, they should be cut back to a nice close compact head, and removed to a cold pit or frame to break afresh. If the soil in the pot is low down, let them have a top-dressing of good sandy peat, and the plants occasionally to have a sprinkling of water overhead; this will strengthen the young wood, and make them break close and bushy. They may stand all the summer out of doors, in a half-shady spot, but not under the drip of trees. The following six kinds will be found valuable for general cultivation, viz., *Carminata*, *Delicata*, *Hyacinthiflora fulgens*, *Lady Alice Peel*, *Salmonea*, *The Bride*.

A few pots of Mignonette can be easily had in the winter by sowing the seed in July. Let the soil be rich loam—three parts to one of manure; and let there be over the crocks in the bottom of the pot a handful of manure alone. To grow good mignonette, the soil must not only be well pressed down, but actually *rammed down*; the plants do the better for it, as all who have tried can testify. Of course they must have while growing all the light and air possible.

I find the *Echeveria retusa*, with its orange-scarlet flowers, a good plant for winter work. It will last in bloom a long time, and bear any amount of knocking about at all times without injury. It is also easily grown in any ordinary glass structure. The cuttings may be put in early in the spring, and, when rooted, potted off in a sandy loamy soil, and watered when required during its summer growth. About September they will throw up their bloom-spikes, and begin to show colour about November; from that time until quite April they will form a conspicuous object in the conservatory, especially if they are grown as I have seen them—several plants together in large pans and pots; thus giving a mass of bloom that cannot fail to be attractive. They must at all times be sparingly watered, especially in the damp days of winter, when but very little will suffice for them.

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## ON MIXED PLANTATIONS.

BY JOHN MORRISON,

Coneypark Nursery, Stirling.

For this Essay the Author was awarded the Medium Gold Medal of the Highland and Agricultural Society of Scotland.

IN TWO PARTS.—PART I.



THE skilful landscape gardener must be considered as a true artist. His art is a combination of the florist's, forester's, land-surveyor's, architect's, and painter's; for he is called upon at times to exercise the skilfulness which belongs to each of these several professions, or to give an opinion on matters practically connected with some of their departments.

The effect which is produced in the appearance of a landscape by a judicious grouping of trees is very remarkable. Besides being in themselves objects of great beauty, they impart an agreeable variety of colouring and shading to the landscape, and serve to show off with advantage all other objects seen along with them, whether in their immediate neighbourhood or at a distance. A level plain, however well cultivated, looks tame and monotonous unless appropriately relieved by strips or groups of planting; and even a single tree in a park is often acknowledged to be a decided outset. An exposed cottage on a rising ground looks solitary, cold, and cheerless; but peering out from amidst trees, the same dwelling seems the very picture of peaceful comfort and happiness. In this latter aspect there appears to be a most appropriate and even necessary connection between the house and the trees, not merely because the planting is required for shelter, but it seems to be absolutely demanded for the sake of its ornamental character. Such an example may serve to bring out the general principle, that a cottage being shown to more advantage when surrounded by a planting of trees, it should always be so provided and exhibited; and if this may be assumed as a general principle, it suggests the existence of certain laws of ornament as belonging to the art of the landscape gardener. The application of these laws, however, must always depend on circumstances; for they cannot be so clearly defined as to entitle them to be considered as absolute, neither are they so doubtful and unsatisfactory as to warrant their being altogether neglected.

In the formation of new plantations, much might be done to secure the beauty of the scenery by such an arrangement of the different varieties of trees as would form an agreeable shading to the landscape. The lights and shadows shown in a great picture are its principal attractions; and, as they give expression to the design of the artist, it is upon them that his chief attention is bestowed. In the same way, the harmony of colouring presented in the natural landscape must likewise be considered one of its most engaging features; and it should be the aim of the landscape gardener to

follow, in every particular, such a method of operation as will bring out this distinguishing quality to the best advantage, and at the same time prevent the exhibition of what may seem incongruous and inconsistent with the scene regarded as a whole. The motley mixture of the Scotch fir, the spruce, and the larch, shown in many plantations, in promiscuous position, even after the trees have attained their maturity, is far from producing a fine effect; and, although such an arrangement might have been found necessary when planting, for the sake of providing suitable nurses, there is no reason why that order should continue to be maintained with the permanent trees.

Viewed from a short distance, a plantation presents the most imposing appearance when the trees are grouped or massed together according to their several varieties, and when all the irregularities of the ground are taken advantage of in order to suit the most efficient display of the various kinds. And where the policies are of even limited extent, and the material placed at his disposal is comparatively scanty, the landscape gardener who has taste and judgment will always make the most of his resources; and it is surprising, when skill is enlisted, how far slender means may be made to go, and how moderate-sized plantations can be made to look much more extensive than they really are. The opportunities afforded for the opening-up of scenery worthy of being shown, or the shutting out from view such objects as are disagreeable, or in bad keeping with the general prospect, by the judicious use of deciduous or evergreen varieties of trees, and preserving the sky-line perfect and unbroken, while at the same time it may be kept waving or undulating, are all points which the eye of the practical man will readily seize upon and turn to account.

Let us take for granted that the mansion-house is the standpoint from which the landscape should take its rise. In the laying-out of our ancient Scottish country seats, the most seems to have been made of such material as could be obtained at the time—the oak, the ash, the beech, and the lime, with here and there a silver and Scotch fir, and perhaps a chestnut. But, for the adornment of our modern parks, a much more extensive assortment is demanded; and when so many valuable additions have been made to our list of trees, which now embraces foliage of the most beautiful and varied shape, and all shades of green, yellow, purple, and scarlet, much wider scope can be given to the taste for rural embellishment than could formerly be afforded. The style and grouping of the policies around the mansion-house must, of course, always be regulated by the situation and the nature of the ground, respect being had to the perspective view; while every knoll or elevation should be made available for the purpose of increasing the effect of the scene, and any notable prospect should be carefully kept open, with here and there a peep at such romantic-looking rocks or mountains as the vicinity can show.

Perhaps no part of landscape gardening operations is more difficult to deal with than those which are proper to that portion of the policies which lie in the immediate vicinity of the mansion-house;

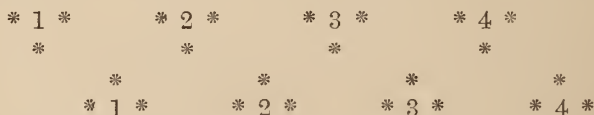
and for the obvious reason, that the laying out and planting of that part of the grounds is subjected to a more frequent and closer inspection, and, as a matter of course, to more severe criticism, than the others; and, forming as it does the foreground of the picture, it necessarily bears the responsibility of setting off the background to the best advantage. I merely refer to these facts in order to show the importance of considering well the whole ground and its bearings before commencing work at all, and also the effect likely to be produced upon those parts of the scene where

“Distance lends enchantment to the view,”

by any changes which may be proposed to be made close at hand.

But the mention of a subject by way of illustration may serve to make the above remarks more easily understood. And as it is difficult to make choice of a private demesne for such a purpose without perhaps giving offence, or running the risk of describing a place not generally known, I shall endeavour to obviate this by naming a mansion-house and grounds with which every Scotchman at least is familiar, and the esteemed proprietor of which is not likely to quarrel with us for so doing—I refer to Holyrood Palace, the mansion of our beloved Queen; taking, also, the Park, Salisbury Crags, Arthur’s Seat, and surrounding ground into account.

The east front of the Palace, extending to the approach gate from the London Road, including both sides of the drive, might with great advantage be planted to a certain extent. On the north side there are perhaps only two views worthy of being kept open; the first, a peep by the corner of the Royal Terrace across the Forth, and having the Fife hills as a background; the other, a prospect along the Forth, by the Bass Rock and seawards. If these two views were preserved, the remaining portion of this line should be closely planted up, so as to exclude some unsightly buildings and public works; and, to do this effectively, a double row of trees in group would be required, consisting of deciduous and evergreen varieties alternately—the inner or wall line being composed of deciduous, and the outer or park line of evergreen varieties; and, as the ground is somewhat narrow, it would be necessary to group the trees in triplets, and plant in zigzag form, as shown in the annexed diagram:—



Such a double line of trees, consisting of eight groups of each variety, would, I think, be sufficient for the purpose above mentioned, and they might be composed and ranged as follows:—Inner line (deciduous), commencing at the foot of the Royal Chapel,—group 1, purple beech (*Fagus s. purpurea*); 2, scarlet oak (*Quercus coccinea*); 3, purple sycamore (*Acer purpurea*); 4, large-leaved maple (*A. macrophyllum*); 5, scarlet-flowering horse-chestnut (*Æs-*



*culus rubicunda*); 6, variegated sycamore (*A. variegata*); 7, birch (*Betula alba*); 8, Spanish chesnut (var. Knight's prolific, *Castanea vesca*). Outer line (evergreen),—group 1, black American spruce (*Abies nigra*); 2, Cembrau stone pine (*Pinus Cembra*); 3, Menzies' spruce (*A. Menziesii*); 4, mountain Weymouth pine (*P. monticola*); 5, the Douglas pine (*A. Douglasii*); 6, Austrian pine (*P. Austriaca*); 7, the Albert spruce (*A. Albertii*); 8, Lobb's arbor-vitæ (*Thuja Lobbii*).

As the ground becomes too narrow to admit of grouping being continued the entire way to the gate, the form of planting would therefore require to be altered, and carried on only in a double row, say of *Pinus Austriaca* and *Abies nigra*; but, at the gate itself, a fine large terminal group might be formed, composed of the beautiful weeping birch, acacia (*Robinia pseudo-acacia*), and Lombardy poplar (*Populus fastigiata*) intermixed.

The above would appropriately screen off from view all that is necessary to be excluded from the prospect in this direction; and the remaining portion of the park, on the same side, would admit of a few additional groups and some single specimens being inserted, and these might be planted parallel with, but at a suitable distance from, the railing in east front of the palace. The specimens should comprise (1) *Picea nobilis*, (2) *P. Nordmanniana*, (3) *P. pinsapo*, and (4) *P. lasiocarpa*—which four would probably be found quite sufficient to form this line; and in front of these, eastward, let two groups be planted, consisting of (1) *Acer Pennsylvanica* and (2) double scarlet, double white, and single scarlet thorn; this latter group should be placed towards the drive; while right in centre of these two, but extending to west end of drill-ground, another group, composed of *Cedrus deodara*, would show with immense effect.

Crossing the drive to the foot of the hill, extending from the elbow of the crags eastwards to St. Anthony's Chapel, a great group of abies, sorts, would stand with much advantage on the level ground. Norway spruce (*A. excelsa*) might be given as a background to show with greater effect Menzies's spruce (*A. Menziesii*), Douglas spruce (*A. Douglasii*), the white spruce (*A. alba*), the black spruce (*A. nigra*); while the lake in front of the chapel I would surround with birch (*B. alba*), Abele poplar (*P. alba*), the Huntingdon willow (*Salix alba*); and at intervals *Abies nigra* and the hemlock spruce (*A. Canadensis*). The two last named would contrast favourably in summer with the foliage of the deciduous trees, and serve as a winter clothing when the others had shed their leaves. This towering clump would have a grand effect; and the old ruins of the chapel would be considerably lightened up by having a few plants of the gold and silver striped elder (*Sambucus var.*) interspersed about it.

West of the lake we leave a wide entrance to Hunter's Bog, where a group of limes (*Tilia Europæa*) and scarlet horse-chestnut (*Æsculus rubicunda*) would be in fine keeping; and advancing in the direction of the lodge, a few single specimens of the upright elm (*Ulmus montana fastigiata*), the golden ash (*Fraxinus aurea*), the purple beech (*F. s. purpurea*), with small groups intermixed of

*Pinus Austriaca* and *Pinus maritima*, might be planted with advantage. At the south corner of the lodge, a large cluster intermixed, and in a pear-shaped form, of Turkey oak (*Q. cerris*), scarlet oak (*Q. coccinea*), purple beech (*F. s. purpurea*), and sycamore (*A. pseudo-platanus*), would show extremely well, extending from the lodge southwards, and returning to the palace along the drive in an avenue of the sycamore, scarlet horse-chestnut, the lime, and beech (*F. sylvatica*), in equal proportions, sufficient space being left between each to admit of one *Cedrus deodara* on both sides of the drive, and onwards the gold and silver striped holly (*Ilex variegata*) and common holly (*I. aquifolium*).

Passing round to the south-west front by Dumbiedykes, and on by St. Leonards, the whole of the buildings in sight require to be shut out from view of the park, and for this purpose I would plant a line of the Lombardy and black Italian poplars along the entire length of the wall; in front the Weymouth pine (*P. strobus*), *Abies Douglasii*, *A. excelsa*, and *P. Austriaca*, intermixed, would form a magnificent screen. The tall pyramidal Lombardy poplar, with the broader set and more majestic black Italian poplar, and *Pinus* in front, would effectually conceal what is not wanted in the view at this point, and at the same time form in themselves very attractive objects.

The flat ground here, extending to both sides of the drive and old meadows, would make a splendid pinetum, the soil and situation being suitable for almost all the varieties. The magnificent *Wellingtonia* would be entirely at home here, as also the deciduous cypress (*Cupressus distichum*), the pines, and abies; while the piceas, excelled by none of the others in beauty, would, as a whole, luxuriate in this part of the ground; likewise the cupressus, thujas, etc., etc. The pinetum could be finished off by a plantation of *Pinus Austriaca* and larch (*Larix Europæa*) sloping up to and finishing at St. Leonards railway station.

Turning now to Salisbury Crags for the purpose of planting, the more rugged portions and jutting rocks ought to be left open and freely exposed. The *Pinus mughus* and *P. montana* might be interspersed here and there, but by no means so thickly as to conceal the wild beauty of the crags. These two varieties get bushy and hang out from the rocks, and they would therefore be in fine keeping with the general outline. Where a suitable spot offered, one or two larch should be slipped in, and these would make tolerable trees, and at the same time form a mixture with the *P. mughus*; the bright green of the larch in spring and yellow in autumn would contrast well with the more sombre foliage of the mughus.

The steep braes sloping down from the Crags towards the valley might be appropriately covered with a wild intermixed mass of such as the sloe (*Prunus spinosa*), the hazel (*Corylus avellana*), the bird-cherry (*Cerasus padus*), thorns of sorts, double and single scarlet and double white cratægus, laburnum (*Cytisus laburnum*), elder (*Sambucus*) of sorts, intermingled with whin (*Ulex Europæa*) and broom (*Cytisus scoparius*). In these we should have such a magnificent mass of wild luxuriance as would hide the present barren,

uncouth-looking acres of quarry debris, and perfume the air for several months in the year; while the same bold outline of the crags being preserved, assisted by the few pines dropped in as proposed, would render the entire scene very different in appearance from what it is at present. Of course some labour and expense would be incurred in accomplishing these improvements, but both would be well bestowed. It would be necessary, in clearing out the shivers, to form pits and fill them with good soil for planting, which would give the trees a fair start, and I have no doubt they would continue to thrive extremely well.

Extending up the hill beyond the crags, but before entering on the higher slope, the larch and Scotch fir (*P. sylvestris*) could be massed in solid squares, so to speak, according as the several levels or inequalities occurred, and following the whole circle of the hill in one mass of *Pinus Austriaca* and Scotch fir, leaving the poll or summit bare and open, as at present, that the magnificent view from it may not be interfered with.

(To be continued.)

## HEATING SMALL PLANT-HOUSES.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



IN making a few remarks on heating small plant-houses, I shall say but little about portable contrivances for keeping the frost out of these structures, for I have had no occasion to make myself acquainted with them. Moreover, I believe them to cost more money and trouble than the results justify. I can well understand the anxiety of people with small gardens to have a little house in which to keep a few plants during the winter, but I would steadily set my face against the erection of houses which will not afford accommodation for sufficient plants to compensate for the cost of fuel and the trouble of attending to the fire. I would also strongly advise those about to build, to either erect a house of sufficient size to be of service, or leave it alone. It would not be difficult to explain my reasons for so doing, but it will suffice on the present occasion to say that little houses are such a constant source of worry and vexation and anxiety, that but little pleasure can be experienced in attending to the plants. The erection of plant structures in a position near the dwelling-house where it is a work of extreme difficulty to fix a heating apparatus, cannot be condemned too strongly. It is as well to face these matters boldly, and say at once that all portable contrivances require quite as much attention as a properly-constructed flue, or a service of hot-water pipes, and are moreover less economical in working.

For plant-houses of all kinds there can be no doubt that a hot-water apparatus is the best, for the pipes take up but little room, and the heat diffused is of a most genial character. It must also be added that houses fitted with a service of hot-water pipes may be



heated by gas or ordinary fuel, provided the boiler is of a proper character. A very large number of amateurs suppose that in heating plant houses by gas the gas is burnt in the house; but notwithstanding the fact, that the combustion of the gas is most injurious to plant life, has been frequently pointed out in the most prominent manner possible, gas heating has considerable advantage, for the only attention required is to turn it on and shut it off as required. It can thus be left for an indefinite period without any attention, and on lighting it on the appearance of frost, it will be simply necessary to ascertain the force of gas required to keep out the frost, and then regulate it accordingly. Gas is more expensive than fuel, but in the case of small houses the difference in the cost will hardly be appreciable, and the bother of stoking is done away with. Added to this, there is no danger of the plants suffering in frosty weather, owing to the fire burning out. For large houses gas is too costly, and fuel is preferable.

Although a hot-water apparatus is unquestionably the best means of heating plant houses, it is well the amateur who cannot afford its erection should know that the structures may be most effectually heated by a flue. The cost of flues, comparatively speaking, is very little, and if built properly, so that the smoke cannot find its way into the house, they act most efficiently and are perfectly safe. In the case of large houses they should extend round the house, but for small houses a single flue on one side will suffice. It will not, however, be practicable to carry the flue round the house, if there is a door at each end, because the rise from the fire to the chimney must be gradual and continuous to ensure a good draught. Flues are perhaps the most economical, as the brickwork of which they consist is soon made hot, and it also retains the heat for a considerable period after the fire has gone out.

With regard to the management of the fires during the winter season, there is not much to be said, although it is most important to employ fire-heat judiciously. The only occasions upon which fire-heat will be required are during frosty and damp weather. As sudden changes are most injurious to plants of all kinds, the fire should on the appearance of frost be started early, and allowed to burn gradually, so that the temperature of the house may be maintained at its proper height, without undergoing any appreciable change. The usual way of starting a fire on a frosty night is to allow the temperature to fall to within a degree or two of the freezing point, and then light the fire and drive it as fast as possible until the glass stands at or about forty-five degrees, and as the temperature will continue to rise for some time after the fire is checked, the plants will most probably experience a change of not less than twenty degrees within an hour or so. This is not only objectionable as regards the health of the plants, but it is exceedingly wasteful, for it is impossible to drive fire hard without a great loss of heat. The temperature will of necessity decline considerably towards the morning, and some degree of caution is necessary in starting the fire. Should the weather be bright, no more fire-heat than is absolutely necessary to keep out the frost should be employed, for if a huge fire is made




up a short time before the sun shines upon the house, the apparatus will be at its greatest heat just as the temperature will be influenced by the sun, and unless air is admitted will soon rise to sixty or seventy degrees. This is especially the case during January and March. These remarks do not of course apply when the fires are attended early in the morning. It may also be well to add that in no case is it desirable to leave the fires for a very long period, and in severe weather they should receive attention as late as twelve o'clock, and again at five or six in the morning. Much of course will depend upon the weather and the character of the house, and the manner in which it is heated, but there is no means by which the inmates can be kept safely in frosty weather, without frequently attending to the fires; and unless the amateur is prepared to bestow this attention, it will be far better to devote his whole attention to plants requiring no artificial heat.

Artificial heat is occasionally necessary to dry up superfluous moisture, and for maintaining a pure atmosphere in dull weather by promoting a circulation of air. In applying fire-heat for either of these purposes, advantage should be taken of a day when the ventilators may be opened freely, for the application of artificial heat with closed ventilators, excepting in cases of frost, will do more harm than good. In foggy weather the house should be kept close, for the admission of the fog into the house cannot possibly do any good. As a rule, the fire for drying up moisture should be lighted rather early in the day, and be made to burn steadily until about two o'clock in the afternoon, when it may be allowed to go out.

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## WINTERING TENDER PLANTS WITHOUT FIRE-HEAT.

BY GEORGE SMITH.

HE difficulties of wintering successfully a stock of bedding plants in a cold pit are by no means light, yet with care and good management so much can be done in this direction that a few suggestions relative to the management of these structures during the winter will probably be of considerable service just now.

With regard to the construction of cold pits, it will suffice to say that they should be about six feet in width, two feet in depth in the front, and three feet at the back, and not less than twenty feet in length. A pit or frame of these dimensions will be found most useful; but if the stock of plants is large the length can of course be increased, the only limit being the space at disposal and the question of expense. At the same time it may be said that a pit of a smaller size than the one here mentioned will be of little real service, as the number of plants it will be capable of holding will be very small. The walls may be made of turf sods, bricks or boards, according as the proprietor of the garden may determine. Brick walls are of course preferable as they have a neater appearance and are more

durable. Wooden walls also have a good appearance, and will last a considerable time. Turf walls are not so slightly nor so desirable as those of wood or bricks, but they answer the desired purpose very well, and where appearance is of secondary importance and the sods not difficult to obtain, they can be strongly recommended. The sods should be cut of a uniform size—say three inches in thickness by twelve inches square. A rather stout piece of wood should be driven into the ground at each corner to aid in keeping the walls more secure than would otherwise be the case. The lights for turf pits should be prepared in a similar manner as for those of brick. In dry soils the pits may be partly above and partly below the ground line with advantage, as there will not be so much difficulty in keeping the frost out, but in naturally damp soils the floor of the pit should be on or slightly above the general level, or the plants will suffer from dampness.

In preparing tender plants, such, for example, as geraniums and verbenas, for wintering in a cold pit, it is most important to have them well hardened. The cuttings must be struck early, and after they are rooted kept in the open air until protection from frost is needful. When the plants are well furnished with roots and the growth moderately firm there will not be much danger of losing them provided the frost is kept from them. As dampness is the chief enemy to contend with, the plants must be placed far enough apart to admit of a free circulation of air amongst them. Air must be admitted freely in mild dry weather, and on exceptionally favourable occasions the lights should be drawn off altogether for a few hours in the middle of the day. As the most favourable times for air-giving have been pointed out, it will perhaps be useful to say that air must not be admitted in foggy, wet, or frosty weather.

The manner in which the plants are watered is also of great importance, and it should be clearly understood that less harm is likely to be done by giving too little than too much. In the winter all the plants require very little moisture, and geraniums may be kept quite dry for weeks together without suffering materially. All watering should be done on the morning of a dry day, when the lights can be drawn off for a few hours afterwards, and it will be better to wait a few days, or even weeks, than to water in dull weather. No more water must be applied than is really necessary to moisten the soil, and the greatest care must be exercised to prevent the foliage being wetted.

Russian mats form the most suitable covering for pits, when aided in severe weather with littery hay or straw. Long litter may be used alone; but it is better to have mats to lay immediately over the glass, and then put the litter over them, when the state of the weather renders additional protection necessary. Covering materials of all kinds should be kept as dry as possible, because of their greater capabilities for resisting frost. With respect to keeping out the frost, it must not for a moment be forgotten that when severe it is not slow in finding its way into the frame through the sides as well as through the glass. I would direct special attention to this, for it is a frequent occurrence in frosty weather to see a thick covering

over the glass and the sides of the frame left quite unprotected. The safest course, and one that can be highly recommended is, to pack a liberal quantity of litter against the wall about the first week in December, and allow it to remain until the end of February. On the appearance of frost the lights should be shut down rather early in the afternoon, and the glass covered before the moisture on the underside commences to freeze.

A very large number of tender plants will not receive material injury if they are frozen, provided they are thawed before being exposed to the light. Therefore if the frost finds its way into the frames, let the covering remain on, and the lights closed until the plants are thawed again, and then uncover by removing a portion of the protecting material at a time.

In the case of frames filled with reputed hardy plants, such as pansies, pentstemons, and auriculas, a moderately light covering will suffice, excepting in very severe weather: its chief value consists in protecting the plants from the sun until they are thawed. It will therefore be seen that in severe weather there should be no hurry in removing the protecting materials in the morning.

A most essential point in the winter management of the cold pit is to remove all decaying leaves or plants with promptitude to prevent those in a healthy state being injured by coming in contact with them.

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## RIPE GRAPES AT CHRISTMAS.

BY J. W. MEREDITH.



WITHIN a comparatively short period it was supposed that to have a dish of good grapes during the Christmas festivities it was necessary to have what is designated an "early" vinery, and to start the vines into growth in the autumn, and push them on through the months of October, November, and December, with artificial heat. This it need hardly be said could be only done at an immense cost; the grapes at that season were therefore placed quite beyond the reach of those with limited means, for, independent of the cost of fuel, a very considerable amount of skill is necessary to ensure satisfactory results. Now the practice has changed, and instead of forcing sorts which attain early maturity, those which can be kept for a considerable period after they are ripe are grown instead.

The advantage of growing late instead of early grapes is immense, for they are produced with less difficulty and expense, and are moreover of a much finer flavour; they are in fact as easily produced as an ordinary crop of Sweetwater or Black Hamburgs, for autumn use. It therefore appears to me that it would be well for those who have only limited accommodation for grape-growing to consider whether it would not be to their advantage to grow grapes that may be kept until the supplies of out-door fruit, such as peaches, nectarines, and plums, are exhausted, instead of those which have to be

November.

consumed at the same time as these fruits. I think it would. As an example of the higher value of grapes at Christmas, it may be mentioned that in the market they are worth three times the price of similar samples sold three months previously.

In the production of late grapes it is essential to plant sorts that will keep in good condition for a considerable period. One of the best of these is the *Kempsey Alicante*, a very handsome grape, of fine flavour. It is not quite so hardy as the Black Hamburgh, and requires the assistance of a little artificial heat in dull and damp weather during the summer. *Lady Downe's Seedling* is also good for late keeping, but it does not set its berries quite so well as the preceding, and frequently suffers severely from "scalding," and the branches have the appearance of having had boiling water poured over them. This is in most instances due to insufficient ventilation, and by increasing the ventilation, and admitting air earlier in the day than usual, as soon as the first berry is attacked, very little harm will be done. *Madresfield Court Black Muscat* and *Mrs. Pince's Muscat* are also very good grapes in skilful hands, but they cannot be recommended to the notice of the amateur cultivator. The best white grape for late keeping is the *Muscat of Alexandria*, but it requires a high temperature, and a very considerable amount of skill is necessary to bring it to perfection. It cannot be grown with either of the above-mentioned varieties, and the amateur will act wisely in cultivating black sorts only.

The month of November presents a most favourable opportunity for planting the vines, for they can be more readily obtained from the nurseries than when in full growth in the spring. They moreover can be planted with a greater degree of certainty of their doing well. The borders should be well drained, and consist chiefly of mellow turfy loam. The general management of the vines will be the same as of those producing crops for autumn use, and therefore it is unnecessary to speak of it in detail. Although the crop will not be required until Christmas, it must be quite ripe in September, for after that period there will not be sufficient sunheat to develop the proper flavour and colour, and moreover, imperfectly ripened samples will not keep so well as those which have attained perfect maturity. To keep the grapes in good condition through the winter, a cool temperature and a dry atmosphere are essential. No plants must be kept in the house, for the moisture arising from them will do an immense amount of mischief. The bunches should after the end of October be carefully examined about once a week, and all berries showing traces of decay removed, to prevent the others being injured by them. After a period of damp weather, especially if the roof is not water-tight, a little fire during the day will be useful in assisting to dispel the dampness, but it is necessary to guard against the use of too much fire-heat, for if the temperature is kept too high the grapes will be converted into raisins, and rendered comparatively worthless.

In cases where a few canes of a late sort are planted in a house with Black Hamburghs, and the house is required for bedding or other plants, the bunches may be kept in water in a cool dark room.



Fill with water as many soda-water or other small bottles as there are bunches, and suspend them in a room or cupboard, then cut the bunches with a portion of the shoot, and insert the end of the latter in the bottle. They can be kept in this manner for several months.

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## GARDEN GUIDE FOR NOVEMBER.

PROCEED with lifting and storing root crops as fast as the weather and the state of the soil will permit. Also clear all quarters of stumps of cabbages, cauliflowers, and other exhausted crops and manure, and then dig them up, leaving the soil very rough on the surface, or throw it up into ridges. It is a very good time to prepare the ground for seakale beds. The roots should not be planted till the spring. The ground must be deeply trenched and liberally manured, and the manure thoroughly incorporated with the soil. Begin forcing now by first placing the seakale pots over as many stools as are to be started, and fill the spaces between and over the pots with a mixture of stable dung that has been once turned, with leaves, straw, and other litter, beating it firm as you proceed, and leaving the whole smooth and tidy nine inches above the top of the pots. Where only small quantities of seakale are required, it may be forced very conveniently and cleanly in pots. Pot the roots singly in 24-sized pots, in a mixture of leaf-mould, rotten dung, and sandy loam, equal parts. Place the pots on the top of a brick flue or on a gentle hotbed, the bottom-heat not to exceed 60°. Invert over each pot another empty pot, stopping the hole of each with a piece of flat tile, over which press a lump of clay. About three-fourths of the complaints that reach us of the misbehaviour of fruit trees, and the failure of vegetable crops, and the unsatisfactory blooming of roses and many other things, have one common origin—the want of drainage. We cannot here enter into the details of the subject; but as this is as good a time as any to drain land that requires it, we again remind our readers that good drainage promotes the warmth and fertility of the soil; and, on the other hand, a water-logged soil is almost poisonous to every kind of plants that come under the care of gardeners.

FRUIT GARDEN.—Currants and gooseberries should now be lifted if required, as the next year's crop will be less jeopardized by getting them early to the places in which they are to fruit. Fork in a good dressing of manure between the trees in old plantations. Put in cuttings of choice sorts; the cuttings to be straight ripe shoots of this year, and all the lower buds removed, so as to prevent the throwing up of suckers. Fruit trees to be planted as soon as possible; manure not to be used unless the ground is in a poor condition, and then a little fresh soil should be used with it if possible. In planting, keep all roots near the surface. Stake as soon as planted, to prevent rocking by the wind, and at the same time prune. Raspberries to have the old canes cut away, the new canes thinned

to three or four of the strongest to each stool, and a good mulch of half-rotten dung laid down over their roots.

**FRUIT HOUSE.**—Peaches in the forcing-house to be pruned at once; the roots top-dressed; the branches washed with a paste of clay, lime, and sulphur, and the lights put on. But give plenty of air. Vacancies may now be filled up in the peach-house, and nothing better for the purpose than bearing trees.

**FLOWER GARDEN.**—Roses planted now, though with leaves still on them, will begin to make fresh roots at once. In any case make the ground ready by manuring liberally where roses are to be planted. Briers worked this season may be lifted now, but they should never have a place in the rosery till they have made at least one full season's growth from the first starting of the buds. Plant firm, and stake at once. Slugs and snails are now very active during mild weather, preparing perhaps to make a good fill before hibernating for the winter. It happens that most people have time now to trap them, which they generally say they have not at other seasons. Brewers' grains or buttered cabbage leaves are the best traps known for these destructive vermin. They will leave any other food for these attractive baits, and may be trapped wholesale by inverting large flower-pots tilted off the ground by means of a few sticks over heaps of fresh brewers' grains. Tulip beds now to have the hoops placed over to be ready for mats or other covering in case of heavy rains. But the bed should be freely exposed for the present; there is nothing gained by covering too soon.

**GREENHOUSE.**—Camellias dropping their buds are the subject of frequent complaint. We have frequently advised the use of liberal waterings after the buds are set and the wood as hard as necessary, and we can only repeat that in the majority of cases the buds drop because the roots are dry. But watering on the ordinary plan is not always a remedy, for while the plants were out of doors in the summer the soil about the roots may have got hard and impervious to water, and now when water is given it all runs away next the side of the pot without moistening the roots at all. The remedy is easy enough. Fill a tub with soft water; then lower the plants into it a few at a time, and let them soak for an hour. The rush of air bubbles from the pots will prove what a dry state the roots had come to. After this soaking they will take water kindly. At every opportunity pass the whole of the plants through a careful hand, whose duty it will be to remove dead leaves, trim away dead snags or mildewed shoots, give water if needful. Use tepid water to all plants in a growing state, and as little as possible to everything, so as to avoid as much as can be the use of fire-heat. Spring flowers to be thought of now, so as to secure a proper succession of Cyclamen, Primula, Cineraria, and a few potted Pansies. The chief point in managing these things is to keep them as near the glass as possible. Give water very carefully, to guard against damp at the collar, and let them have as much air as possible consistent with their forwardness and the state of the weather. Those to be pushed on for a first supply keep in warm greenhouse temperature, and constantly look out for fly which will revel amongst them

if not checked in time. Succulent plants must now be arranged in their winter quarters. In a mixed collection the best place for them is a top shelf in the full light, and where they are not likely to suffer by drip. The requirements for their winter safety are a dry position, plenty of light, air when needful, and security from frost.

**VINERY.**—Vines grown in pots for forcing for early grapes may now be shifted into large pots, and the safest way to do it will be to shift pots and all, and without turning out the roots of the vines. Prepare the 12-inch pots with crocks and a few inches of compost; enlarge the drainage holes of the pots the vines are in, then place these pots inside the larger pots, and fill in with tough turfy compost; the outer pot will soon be full of roots, and the vines may be allowed to carry all the bunches they show, and when these are ripe the vines should be destroyed. Vines to rest from this time to be pruned at once; in fact, early pruning is the only safe method of preventing bleeding.

**STOVE.**—Forcing to be commenced now. Put in nothing but what has been prepared for the work, and has ripe wood and well-formed flower-buds. Azaleas, Camellias, Gardenias, Roses, hybrid Rhododendrons, double Plums and Peaches, double Cherry, Weigelias, Tree Pæonies, Chimonanthus fragrans, Rhododendron ciliatum, Cytissus Atleeana, Kalmias, Andromeda floribunda, Daphnes, and Jasminum nudiflorum, are all cheap and easy subjects to force, and all beautiful in their season. Orchids at rest to be kept moderately dry and ventilated. Endeavour to make them rest completely, as if they do not enjoy a season of complete repose, they will not bloom so satisfactorily next season. Those that do not naturally rest to have the warmest positions, but even these are not now to be encouraged to grow more than sufficient to keep them in health.

**PITS AND FRAMES.**—Auriculas, Carnations, Picotees, and Pansies in pots to have air frequently, to prevent mildew; slight frosts will not hurt them so much as a confined and damp air; take off the lights in the morning, and keep them off till the sun is nearly quitting the frames, then shut up, and there will be enough warmth retained to counteract the frost without. In damp, dull weather, tilt the lights only to admit a slight current of air through, and at every opportunity when the weather is genial take the lights off, clear away dead leaves, gently stir the surface of the soil in the pots, and give a little water if needed. Auriculas must be kept clean and dry; any drip from the frames will do incalculable mischief; at no time, not even during frost, should the roots be dust dry. Carnations will often be found beset with green-fly during damp warm weather at this time of year; in which case fumigate at once, and again a few days afterwards.

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## INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

### SELECTIONS OF HARDY FLORISTS' FLOWERS.

(The very best in each class are marked thus †\*,  
and the next best thus \*.)

#### ANTIRRHINUMS (30).

Acteon, Admiral, Amos†, Bijou, Bridesmaid, Brunel, Hebe, Bella, Charming†\*, Crown Jewel, Damascus†, Delicatum†\*, Europa, Fire King, George Gordon†\*, Gladiateur†, Glorious, Harlequin, Jothaint, Jules Edouard, Ne Plus Ultra, Orange Boven†\*, Prince Alfred†, Queen of Crimson, Rosy Morn†, Striped Unique, Sunbeam, The Prince, The Bride, William Robinson, Yellow Gem†\*.

#### AURICULAS.

(24).—*Gr. E.*: Admiral Napier, Leigh's Colonel Taylor, Dickson's Duke of Wellington, Page's Champion, Hudson's Apollo, Oliver's Lovely Ann†, Smith's Lycurgus, Cheetham's Lancashire Hero†\*. *Gy. E.*: Headly's George Lightbody†, Turner's Colonel Champneys†\*, Turner's Competitor, Chapman's Maria†\*, Reid's Miss Giddings†\*, Fletcher's Ne Plus Ultra, Lightbody's Robert Traill†\*, Lightbody's Sir John Moore†\*, Headly's Stapleford Hero. *W. E.*: Campbell's Robert Burns†, Heaps' Smiling Beauty, Taylor's Glory, Smith's Ne Plus Ultra†\*, Ashworth's Regular, Wild's Bright Phœbus†\*.

*Selfs* (12).—Spalding's Blackbird, Turner's Cheerfulness\*, Turner's Master Hole\*, Martin's Eclipse, Smith's Formosa\*, Lightbody's Meteor Flag\*, Martin's Mrs. Sturrock, Spalding's Metropolitan, Turner's Negro\*, Netherwood's Othello, Headly's Royal Purple, Headly's Lord Clyde\*.

*Alpines* (12).—Beatrice, Black Prince\*, Brilliant, King of Crimson, Defiance, Field Marshal, Jessie\*, John Leech\*, Landseer\*, Novelty\*, Venus, Wonderful\*.

#### CARNATIONS (24).

*Scarlet Bizarres*.—Admiral Curzon (Easom), Captain Thompson (Puxley), Dreadnought\*† (Daniels), John Norman\* (Norman), Sir Joseph Paxton (Ely), William Pitt (Puxley).

*Crimson Bizarres*.—Colonel North (Kirtland), Eccentric Jack\*† (Wood), Earl of Zetland\* (Norman), Lord Goderich (Gill), Lamplighter (Wood), Warrior\*† (Slater).

*Scarlet Flakes*.—Annihilator\*† (Jackson), Christopher Sly (May), Illuminator (Puxley), John Bayley (Dodwell), Mr. Battersby (Gibbins), William Cowpert† (Wood).

*Purple Flakes*.—Dr. Foster\*† (Foster), Earl of Stamford, Florence Nightingale (Seeley), Mayor of Nottingham (Taylor), True Blue (Taylor), Squire Meynell† (Brabbon).

*Rose Flakes*.—John Keel\*† (Whitehead), Lovely Ann† (Ely), Nymph (Puxley), Poor Tom (May), Queen Boadicea (Empsall), Rose of Sharon (Empsall).

*Pink and Purple Bizarres*.—Captivation† (Taylor), Falconbride\*† (May), Fanny (Dodwell), John o' Gaunt (May), Purity (Wood), Shakespeare (Puxley).

#### HOLLYHOCKS.

A SELECTION OF ONE HUNDRED VARIETIES (*s*, spike; *b*, bloom).

*Light*.—Beauty, *s b*; Bridesmaid, *b*; Beauty of Milford, *s*; Countess of Crawford, *s*; Carus Chater, *s b*; Enchantress, *b*; Mrs. Elliot, *s*; Perfection; Nymph, *s b*; Purity, *s†*; Royal White, *s b*.



*Yellow, Orange, and Salmon.*—Champion, *s b*; Decision, *s b†*; El Dorado, *s*; Fred Chater, *b*; Hereules, *s b†*; Imperator, *s b†*; Invincible, *b†*; John Cowan, *s b*; John Cockburn, *s b*; Leah, *s b*; Miss Lizzie King, *s*; Mrs. Downie, *s b*; Premier, *s b*; Stanstead Rival, *s b*; Orange Boven, *s b*; Yellow Defiance, *b*; Dr. Canny, *b*; Gem of Yellows Improved, *s*; Jewel, *b*; John Pow, *s*; Jaune d'Or, *s*; Primrose Gem, *s*; Walden Queen, *s b†*.

*Crimson, Red, and Rose.*—Archbishop, *s b*; Captain Grant, *b*; Earl of Rosalyn, *s*; Earl of Breadalbane, *s b*; Fanny Chater, *s b*; George Keith, *s b†*; Glory, *s b*; Glory of Walden, *s b*; Governor-General, *s b*; Joshua Clarke, *b*; J. B. Ullett, *s b†*; Lady Vaux, *b*; Lord Clifden, *s b*; Lord Rokeby, *s*; Lady Rokeby, *s b*; Midnight, *s b*; Miss F. H. Douglas, *s*; Mrs. Mackenzie, *s b*; Mrs. Bruce Todd, *s*; Queen Victoria, *s b*; Rev. J. Dix, *b*; Rev. E. Hawke, *s b*; Robert Paterson, *s b*; Royal Scarlet, *s b†*; George Johnston, *b*; R. T. Mackintosh, *s b*; Beauty of Walden, *s*; Crimson Royal, *s*; Garibaldi, *s b*; Mrs. Balfour, *s*; Rose d'Amour, *s b*; Richard Dean, *s b*; William Craven, *s b*; William Thomson, *s b*; William Young, *s*.

*Lilac and Peach.*—Countess Craven, *b*; Mrs. Boston, *s*; James Anderson, *s b*; Lady Paxton, *s*; Lady Middleton, *s b*; Lilac Perfection, *s b*; John Gair, *b*; Mrs. Laing, *s b*; Ne Plus Ultra, *s b*; Willingham Defiance, *s b†*; Euphrosyne, *s*; Majestic, *s b*; Miss Barrett, *b*; Mrs. P. Bruce, *s b*; Rose Celestial, *b*; Flower of the Forest, *s b*.

*Purple and Maroon.*—Captain Clarke, *s b*; John Stuart, *s b*; Magdalene Tweedie, *s b*; Purple Emperor, *s b†*; Othello, *s b*; Mulberry, *s*; Black Knight, *s*; Lord Loughborough, *b*; Lord Taunton, *b*; Prince Imperial, *s*; Purple Standard, *s*; Margaret, *s b*; War Eagle, *s*; William Millingham, *s*.

#### PANSIES.

*Selfs.*—Arab, Cherub†\*, Cyril†\*, George Keith†\*, Locomotive, Masterpiece, Miss Ramsay, Miss Muir, Mrs. Horsburgh, Snowdrop. *Yellow ground.*—A. Whamond†, Captain Sheriff, Thomas H. Douglas†, Tom White†, George Wilson†, J. B. Downie†, John Downie, John Currie, Prince of Wales, Thomas Martin†, Victor, W. Martin. *White ground.*—Hon. Mrs. Menzies, Lady Lucy Dundas, Lavinia†\*, Miss Adamson, Mabel†, Mrs. A. Buchanan, Mrs. Hopkins†, Princess of Wales†, The Queen†\*.

FANCY PANSIES (24).—Agnes Laing†, Black Prince†, Buttercup, Earl of Rosslyn†, Hugh W. Adair†, Indigo, Lady Montgomery, Lady Ross†, Maccaroni, Magnificent, Miss J. Kay†\*, Mrs. Laird, Mrs. R. Deant†\*, Mrs. H. Northcot†, Magdalene Tweedie†\*, Miss F. Hope, Princess Alice, Rev. J. Robertson, Stephen Nairn, Striped Queen†\*, Thomas Nicol, Wonderful†\*, William Hay†\*.

BEDDING PANSIES.—Golden Prince, yellow; Great Eastern, white, with bluish blotches; Cloth of Gold, golden yellow; Maccaroni, bluish purple; Cliveden Blue, rich blue; Cliveden Yellow; Maggie; Pride of Rufford, yellow.

#### PENTSTEMONS (26).

A. St. Clair, Arthur M'Hardy, Arthur Sterry, Azurea elegans, Bessie Anderson, Lady Boswell, George Ames, Delicatissima\*, Grandis, Harry King, James Rothschild, Magenta\*, Miss Carnegie, Mrs. Moon, Mrs. A. Sterry, Lady Countess Lindsay, Painted Lady, Purple King, Queen Victoria, Robert Fenn, Rev. C. P. Peach, Shirley Hibberd\*, Stanstead Rival\*, Victor, W. E. Gumbleton\*, William Blackwood, William Thom.

#### PHLOXES.

*Early-flowering* (18).—Auber, Duchess of Hamilton, Duchess of Sutherland\*, Her Majesty\*, James Laing, John Watson, Lady Abercromby, Lady Ross, Mrs. Laing, Princess Louise, Mrs. George Wilson\*, Mrs. Baillie, Mrs. Murray, Mrs. Hunter\*, Princess of Wales, Robert Hanna, William Shand\*, William Paul\*.

*Late-flowering* (48).—Amabilis, A. F. Barron, Aurantiaca superb†\*, Adeline Patti, Bryan Wynne, Comtesse de la Pannouse†\*, Dr. Balfour, Dr. Masters†\*, Duke of Sutherland, Ducrot, Etoile de Neuilly, Flora McNab, John Laing, Liervall†, Lothair, Madame Domage†\*, Madlle. Aubert Turenne, Madame Thibaut, Madame Andry, Madame Barillet, Madame A. Verschaffelt, Madame Marie Saison†, Madame Rœmpler, Miss Macrae, Mrs. Dombrain, Mrs. Whitehead, Mons. W. Bull\*, Madame

Froment, Mons. Malet, Mons. Veitch, Mons. H. Low, Mons. Marin Saison†\*, Mons. C. Turner, Mons. Lindent†\*, Mons. G. Henderson, Mrs. Laing†, Phillipia Penglase, Prémices du Bonheur, Princess Louise, Professor Koch, Roi des Roses, Rosy Morn†\*, Shirley Hibberd\*, Queen Victoria, Queen of Winter, R. B. Laird, Souvenir des Fernes, Virgo Mariet\*.

### PICOTEES (24).

*Heavy Red edge.*—Colonel Clerk (Norman), Countess of Wilton (Holland), Exhibition (Elkington), John Smith\*† (Bonus), Lord Valentine† (Kirtland), Mrs. Norman (Norman).

*Light Red edge.*—Ada Mary (Smith), Agnes (Taylor), Miss Holbeck (Kirtland), Miss Turner\*† (Taylor), Mrs. Reynolds Hole (Turner), Wm. Summers† (Simmonite).

*Heavy Purple edge.*—Admiration† (Turner), Lord Nelson (Norman), Mrs. Bayley (Dodwell), Mrs. Summers\*† (Simmonite), Nimrod (Fellowes), Picco (Jackson).

*Heavy Rose edge.*—Aurora (Smith), Elise (Kirtland), Flower of the Day\*† (Norman), Gipsy Bride (Wood), Princess Alice (Kirtland), Scarlet Queen† (Wood).

*Light-edge Rose.*—Lucy (Taylor), Maid of Clifton† (Taylor), Miss Sewell (Kirtland), Miss Wood (Wood), Mrs. Fisher\*† (Taylor), Rosy Circle (Payne).

*Light Purple edge.*—Amy Robsart (Dodwell), Ganymede (Simmonite), Lady Elcho (Turner), Mary\*† (Simmonite), National (Kirtland), Princess of Wales\*† (Kirtland).

PERPETUAL-FLOWERING.—Ascot Giant, Ascot Yellow, Prince of Orange.

### PINKS (24).

Agnes†, Bertram†, Blondin, Charles Waterton†, Delicata, Device, Dr. Maclean, Elcho\*, Emily, Eustace, Godfrey, John Ball†\*, Lady Craven†\*, Lady Clifton, Lizzie, Lord Kirkaldie†, Marion, Maud, Mrs. Maclean†, Mrs. Waite, Perfection†\*, Picturata, Rev. G. Jeanst†, Shirley Hibberd†\*, Superb.

## HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY.—FLORAL COMMITTEE, October 1.

—The number of novelties was small; the meeting was, nevertheless, considering the lateness of the season, of a most interesting character. Prizes were offered for six pots of Autumn Crocuses. Mr. Parker, of Tooting, staged fine masses of *Colchicum autumnale*, white; *C. autumnale pallidum*, blush-white; *C. autumnale variegatum*, the flowers striped purple on a lilac ground; *C. byzantinum*, flowers pale lilac, large; *C. byzantinum maximum*, a fine form of the preceding, with flowers of large size and deep colour. Mr. Parker also exhibited a dwarf *Chrysanthemum*, with medium-sized flowers of a bluish-white shading to pale lilac, which appears to be useful for decorative purposes early in the season. Mr. Parker also exhibited a very interesting group of herbaceous plants in pots, and as cut specimens, including *Aster amellus*, a fine dwarf species, with showy purplish-blue flowers; *Aster discolor*, a dense-growing species, with small white and lilac flowers; *Tritoma uvaria glaucescens*, a very dwarf-growing and desirable form of this well-known species; and cut specimens of *Rudbeckia Newmanni*, a showy yellow-flowered species; *Helianthus multiflorus*, a fine species with large yellow flowers; and *Delphinium Prince of Wales*, a fine variety with light blue flowers; and *D. Nahamah*, a desirable variety with dark blue flowers. Mr. Coulter, gardener, Haydn Hall, Eastcote, exhibited a well-flowered specimen of *Eucharis amazonica*. Mr. Strahan, gardener, Waddon Hall, Croydon, a variegated variety of *Celogync cristata*. Mr. Wimsett, Ashburnham Park Nurseries, Chelsea, contributed an interesting collection of new plants, comprising *Crotons*, *Palms*, *Aralias*, and other subjects of a similar character; and from the Society's Gardens at Chiswick came two fine specimens of the beautiful

*Lomaria gibba* Belli. A splendid collection of cut Roses was exhibited by Mr. W. Paul, Waltham Cross, in which the principal autumn-flowering varieties were represented. Amongst others, Mr. W. Paul had fine blooms of Madame Trifle, a fine variety in the way of Gloire de Dijon, of which it is a seedling; and Madame Camille, a fine variety of the same class with delicate blush flowers. Messrs. Paul and Sons, Cheshunt, who also contributed a large and most excellent collection, staged fine blooms of Madame Margottin, a yellow tea rose of great merit, and Mons. Berard, another good rose of the same class; Belle Lyonnaise, one of the new tea roses, was also shown in splendid condition in both collections.

MR. W. PAUL, OF WALTHAM CROSS, W., will, we are informed, hold an Exhibition of Roses, Pictorial Trees, etc., in the Crystal Palace, in May next. The forthcoming exhibition will, we have no doubt, be of a most interesting character.

THE ROYAL CALEDONIAN HORTICULTURAL SOCIETY has undertaken to arrange for an International Fruit Show in Edinburgh in 1875.

A GRAND INTERNATIONAL EXHIBITION OF PLANTS, CUT FLOWERS, AND FRUITS, will, we learn from Mr. C. D. Yonge, Hon. Sec., be held by the North of Ireland Horticultural Society at Belfast, in the last week of August, 1874, during the visit of the British Association to that town. The Regulations and List of Prizes offered will be published in the course of the current month.

## TO CORRESPONDENTS.

CONIFEROUS TREES FOR HEDGES, AND CLIPPED SPECIMENS.—*R. S.*—The following selection comprises the most suitable trees for hedges, and for clipped specimens:—*Abies excelsa*, useful for forming screens, eight or ten feet high, by road side; the plants must be bushy and the clipping commenced when young. *A. nigra*, useful for the same purpose as the preceding, provided strong bushy plants are selected. *Cedrus atlantica*, makes fine screens or round-headed specimens by a judicious course of clipping. *Cephalotaxus drupacea*, a dense growing tree, forming good hedges from six to twelve feet high. *Cupressus Lawsoniana*, may be employed in the formation of thin screens six or eight feet high, or as columnar specimens. *C. Lawsoniana argentea*; this variety, on account of its silvery foliage, forms effective columnar specimens. *C. Lawsoniana crecta viridis*, a good variety, highly ornamental in geometrical gardens, when clipped to form columnar specimens, like the Irish yew. *C. Lawsoniana gracilis*, valuable for dense hedges, or round-headed specimens. *C. macrocarpa*, a strong growing species, forming good hedges or single specimens. *Juniperus communis*, this species forms neat pyramidal specimens by judicious clipping. *J. Chinensis*, forms neat pyramids when nicely clipped. *J. Chinensis aurea*, valuable for small single specimens, very rich in colour. *J. Virginiana*, a free growing species; may be employed for screens, but best adapted for pyramidal specimens. *J. Virginiana glauca*, a distinct variety of the preceding, with glaucous foliage. *Libocedrus decurrens*, forms effective columnar specimens by the removal of the tips of the young shoots annually. *Taxodium distichum*, a handsome tree, forming neat pyramidal specimens. *Taxus baccata*, most valuable for hedges, from four to twelve feet high, and from one to three feet through. *T. baccata aurea*, a beautiful variety, of great value for pyramidal or bush specimens. *T. baccata elegantissima*, a pretty variety, with silver-striped leaves, forms good bush or pyramidal specimens. *Thuja gigantea*, a handsome tree, and very effective when clipped to form columnar specimens. *T. occidentalis*, one of the very best trees for making hedges, as it bears severe clipping without injury, and succeeds in any soil. *T. occidentalis Vervaekeana*, a distinct variety, with yellowish foliage, fine for pyramidal or bush specimens. *T. Warreana*, a fine species for pyramidal or bush specimens, and also for hedges. *T. Siberica*, a very useful species for hedges and columnar or pyramidal specimens. *Thujopsis borealis*, fine for screens and columnar or pyramidal specimens. *T. borealis variegata*, a distinct variety, of considerable value for single specimens. *T. dolabrata*, a fine species of a light green colour; valuable for single specimens. *T. dolabrata variegata*, a pretty variety, with the branchlets splashed with gold; good for single specimens.

CONIFEROUS TIMBER TREES.—*F. H.*—The undermentioned are the best of the coniferous timber trees, but they are not all equally well suited for extensive November.



planting in all parts of the country. *Abies Canadensis*, the Hemlock spruce; timber of fair quality, bark said to be useful for tanning. *A. Douglasi*, a very beautiful free-growing tree; timber of good quality, very straight, and free from knots. *A. excelsa*, the spruce fir; timber light, elastic, and moderately resinous. *A. excelsa nigra*, a dark-leaved form, producing timber of similar quality to the preceding. *A. Menziesi*, a tall-growing tree; timber said to be of good quality. *A. nigra*, tall and rather slender; timber rather light, elastic, and strong. *A. orientalis*, a beautiful slender growing tree; timber tough and of excellent quality. *A. Pattoni*, a splendid tree, of large growth; timber hard, of fine grain, and of a reddish colour. *Cedrus deodara*, a fine timber tree in the Himalayas, but of little use as such in this country. *Larix Europæa*, a tall quick-growing tree; timber straight, elastic, and durable. *L. microcarpa*, a tall, slender-growing tree; timber heavy and resinous. *Picea Cephalonica*, a tall tree, with large stem; timber hard and durable. *P. pectinata*, the common silver fir; a desirable tree, producing under favourable conditions timber of fair quality. *P. pectinata leioclada*, a desirable variety of the preceding. *P. pindrow*, a tall handsome tree; timber of fair quality, but soon decays when exposed to the sun. *P. Pinsapo*, a very handsome tree; timber similar to that of the silver fir. *Pinus Austriaca*, a tall tree, of robust growth; timber strong and tough, and rather resinous. *P. Benthamiana*, a noble tree, producing timber of excellent quality. *P. cembra*, a handsome tree; timber soft, of fine grain, and resinous. *P. excelsa*, a robust tree of good appearance; timber white, soft, and resinous. *P. Hartwegi*, a handsome tree, but requires a sheltered situation; timber durable and of good quality. *P. larico*, a robust tree; timber coarse, but elastic and durable. *P. Lambertiana*, a vigorous tree when planted in pure sand; timber white and soft, and of no special value. *P. Pallasiiana*, tree of handsome pyramidal growth; timber very knotty and resinous, but exceedingly durable. *P. Pinaster*, a useful plantation tree; timber soft and not durable. *P. ponderosa*, a tall robust tree; timber heavy and of good quality. *P. strobus*, a tall tree, forming a conical head; timber white, light, and very easily worked. *P. strobus alba*, a distinct variety, with silvery leaves; timber of the same quality as that of the preceding. *P. sylvestris* a tall free-growing tree; timber of most excellent quality, and durable. *P. sylvestris argentea*, a free-growing variety, with silvery grey leaves. All the above are well adapted for forming masses and plantations in parks, and in prominent positions seen from the dwelling-house, and the timber is more or less valuable; but the *Larch*, *Scotch Fir*, *Spruce Fir*, *Pinus Benthamiana*, and *Pinus Austriaca* are the only kinds suitable for planting extensively for producing timber for commercial purposes.

DINNER-TABLE DECORATIONS.—X. Y. Z.—The subject shall have attention shortly. There is considerable difficulty in securing a supply of really good flowers for the purpose without the aid of more glass than a cold frame.

HARDY GARDEN FLOWERS.—S. E.—It is too late now to raise perennials for next year to have them strong; but hollyhocks, wall-flowers, antirrhinums, phloxes, silenes, arabis, alyssum, aquilegias, perennial poppies, perennial asters, aubrietias, daisies, perennial valerian, campanulas, centaurea, cistus, delphinium, dianthus, cschscholtzias, hardy gaillardias, perennial lupins, forget-me-nots, pentstemons, potentillas, saxirages, veronicas, and violas may still be sown, and will have the best chance if in pots, and kept in frames all the winter. If sown in the open ground, a dry slope would be the best place; and some seed should be saved to sow early next spring, and the majority will bloom the same season. A better plan than buying seeds now would be to buy plants, and to plant them out where they are to flower next season. At any good nursery you will find heaps of useful things. For flowers to come between the spring bulbs and May-day there is a great need. The yellow alyssum and the purple aubrietia are two splendid things, and make a most beautiful contrast if in contiguous patches. Daisies and anemones are useful. Cowslips, primroses, and violets, especially the double sorts, are good early bloomers. Belgian daisies, kept over winter in frames, and encouraged to bloom early, make a splendid show in April; and many of the hardy species of scilla make beautiful patches of colour from March to May, to vary the effects of other hardy bulbs blooming at the same period. Early and late tulips, planted in patches in the borders, increase the glow of colour, and continue it till the season of summer flowers.







PELARGONIUM. — IMOGEN.

## DR. DENNY'S GERANIUMS.

*(With Coloured Plate of Geranium Imogen.)*

WHEN Dr. Denny, of Stoke Newington, first began to raise seedling geraniums—about ten years since—his principal object was to determine, by systematic experiments and observations, the nature of the process by which new varieties of flowers are produced, and especially the relative influence of the respective parents on the offspring. He could not have selected a more suitable plant for his operations, the zonate pelargonium, or “geranium” of the flower garden, being one of the most valuable plants in cultivation, and presenting in its variations the most opposite and diverse characters. If we place side by side a selection of single and double flowering, gold, silver, and bronze-leaved geraniums, we shall see so many distinct characters that it would pass belief that they are all forms of one species, unless we had evidence to establish the fact. As for the fact, indeed, it is notorious, but it is none the less surprising and wonderful. When Dr. Denny entered upon his agreeable labours, the raising of tricolours was a popular passion. The superbly variegated leaves of these plants are less sought after now, but in common with all other sections of the zonal family, a certain degree of favour they will ever enjoy; for the geraniums are the most useful of the many tender plants that are cherished in our gardens.

It is impossible now to present anything like an analysis of the results obtained by the scientific method of our esteemed friend and neighbour. Some account of registered crossings, and of the plants produced, was given in the “Gardener’s Magazine,” of August 24, 1867, and to that, for the present, we must refer readers who propose to study the subject. It may be well, however, to remark that one broad and useful conclusion arrived at (and, as we believe, sufficiently established) is, that the pollen parent, or say the father plant, exercises the greatest influence on the character of the offspring. The old rule of the florists is, therefore, considerably modified, but we would not cast their rule—which required a well-formed flower for the mother—to the winds, for in this systematic geranium crossing, the seed plant, or mother plant, has always communicated somewhat of its characteristics to the seedlings. How pinks and whites have been bred from scarlets, and how doubles and tricolors have originated, is now in great part explained in a way to satisfy scientific men, and our friend has contributed more than any other worker to this desirable and most valuable end. Whatever interest we, as gardeners, may take in the subject, we cannot but admire the magnificent named varieties that have been selected by Dr. Denny from his thousands of seedling plants, and it is the more agreeable to make note of them, because amongst them are several that so nearly approach true blue in colour, that we are compelled to believe and hope that in due time the Blue Geranium will surely come.

Two years ago Mr. William Paul sent out a set of Dr. Denny’s

geraniums. They soon became famous for their fine habit of growth and large circular flowers. Amongst them *Haidee* and *Diana* were conspicuous for their strong tone of blue, and all were notable for depth and decisiveness of colour and stoutness of petal. Another set is now on offer by Mr. John Copelin, of Tyssen Street Nurseries, West Hackney, and there can be no doubt these will mark a distinct epoch in the history of the zonal geranium. This set comprises seven varieties. *Rienzi* is a scarlet flower of the shape and size of a perfect show pansy. *Lord Macaulay* is plum-coloured crimson. *Richard Cœur de Lion* is deep scarlet, and may be best described as a great advance on *Leonidas*. *Jessica* is of the most perfect form, the colour a deep maroon crimson. *Rose of Allandale* is an improvement on *Beaute du Suresne*, with the same delicious colour, and with broader petals. *Zenobia* is brilliant cherry crimson, and flowers so freely that even now, when frost and fog have made an end of the glories of the garden, the stock of this plant in the nursery presents a brilliant sheet of colour, although the houses in which the geraniums are grown are only kept sufficiently warm to exclude frost safely. *Nelson* is a rich blue-tinted magenta flower, most delicious in colour in the spring and autumn. For winter flowers we have no such zonals as these, for not only are they of the highest quality as florists' flowers, but their lovely shades of blue come out with better effect in the dead season of the year than at any other time.

While enjoying the splendid display of the selected set in Copelin's nursery, we made note of a curious and beautiful seedling, named *Imogen*. As this is not for sale at present, those who would wish to possess it must be content to wait. It is of dwarf growth, and produces flowers of the most perfect form, the colour of which is a soft blue-tinted rose. It will, we have no doubt, prove eventually the finest of all known bedding plants, but it flowers so freely that to propagate it is slow work, and hence it cannot at present be offered for sale. We must confess our plate does not do it justice. Mr. Slocombe exercised his best skill in the drawing, and engraver and printer have spared no pains, and yet the true colour of the flower is not represented. No uncommon case this, and there is no help for it. We must beg our readers to accept the will for the deed, and James Thomson shall apologize for us by asking, "Who can paint like nature?" Probably in the course of the coming spring *Imogen* will be presented to the Floral Committee, and then—the committee shall see what they shall see.

Dr. Denny's home garden is so gay in winter with hundreds of geraniums in gorgeous bloom, that we have sought his aid in the interest of our readers, many of whom, we are sure, would be glad to laugh at the fog and the frost and the rain and the snow, if only they could secure a buxom bouquet of fiery flowers to sustain their merriment.

S. H.



## ZONAL PELARGONIUMS FOR WINTER DECORATION.

BY DR. JOHN DENNY, F.R.H.S.



OO little heed has hitherto been paid the Zonal Pelargoniums, or "geraniums" of the garden, for autumn and winter decoration.

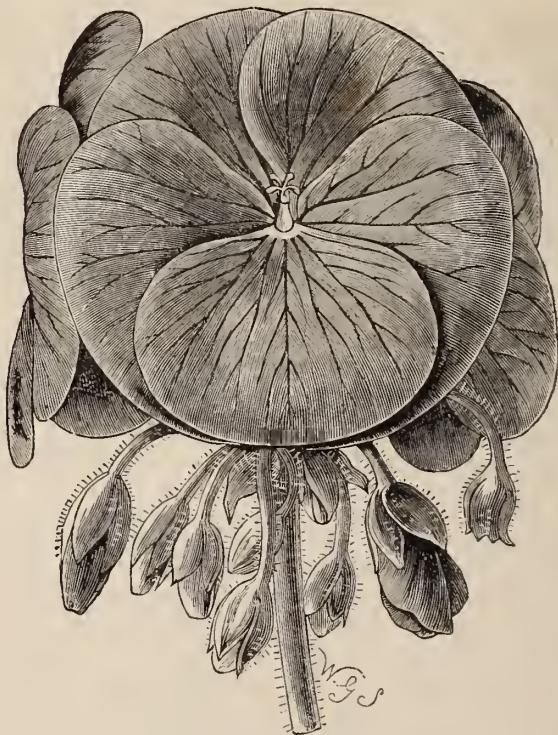
Custom has consigned the scarlet geraniums of every class to the beds or borders of our pleasure grounds and gardens, while ignoring their tremendous claims on our regard as winter flowering greenhouse plants. Amateurs, and gardeners in large establishments, have alike shown a foolish and injurious indifference to the splendid capabilities of the zonals for conservatory decoration, and especially their adaptation to supply a want during the dull and dreary months of autumn, when bright flowers are at their lowest ebb, and colour is the most needed.

Time was, when the zonal geranium afforded but little variety of colour, and certainly no quality of flower. It was then properly regarded as merely adapted for massing for contrast and effect, and not for close inspection. Hence the custom of regarding it as suitable for bedding purposes *only*; but painstaking and energy have greatly transformed this plant of late, for it may with truth be said now to possess flowers of almost every conceivable colour—colours too that put on their brightest hues in the autumn months, and become the more brilliant as the sun declines. It is then the scarlets stand out the most conspicuous; the crimsons and maroons become shot, as it were, with various hues of purple; the pinks most brilliant, and the various shades of magenta really turn to blue. With regard to form, we have now amongst the recently introduced varieties many that will stand the test of crucial criticism, and will not be found wanting; even when florists' qualities are taken as the standard of comparison, these are worthy of a foremost place in any conservatory. In this respect, too, some varieties are even more perfect in the autumn months than at any season of the year. As an illustration of this fact I refer the reader to the engraving of Rienzi, an exact copy of a photograph taken of a truss in my house on the 18th of November, 1872. This variety, I consider, may fairly be taken as the type of a florists' flower in the scarlet geranium.

The coloured plate of Imogen very inadequately represents the advance I have obtained towards my goal, for I started with the intention of obtaining *blue*, and I am not yet daunted, but convinced that time and patience will some day secure it. But I must confess that I consider myself much nearer the attainment of another point of equal, if not of more importance still (as it would obviate the greatest defect of the geranium family) in obtaining a strain that shall retain their petals until they wither on the truss instead of falling, in fact I have succeeded partially in many, and *completely* in one variety. Next year will tell me whether I can perpetuate this valuable property, and thereby found a strain which would be so

distinct from all we at present possess, as to be more like a distinct species.

There is no difficulty in the cultivation of the geranium for



ZONAL PELARGONIUM RIENZI.

From a Photograph taken on the 18th November, 1872.

autumn and winter flowering ; and for this purpose I should choose good bushy, autumn-struck plants, that have stood the winter in 60-sized pots ; shift them into 48's in the middle of May, and stand them in an open situation upon a thick layer of cinder ashes. They should be regularly pinched in well to keep them dwarf and bushy, and the flower buds should be systematically and strictly removed as fast as they appear. Water them sparingly when first potted, fairly afterwards ; towards the end of July, or at latest early in August, shift them into new 32-sized pots (of course if larger plants are commenced with, the shifts must be into larger pots still). On each occasion use a generous compost, consisting of two-thirds soft fibrous yellow loam, and one-third thoroughly decayed manure, taking care that the drainage is good. For this purpose I am partial to a little rough charcoal over the crocks. Be careful of the amount of water given on all occasions after re-potting, until the plants have become somewhat re-established. From this time

cease stopping, or in other words do no more pinching off the points of the shoots, but continue to denude of flower buds till the middle of September, by which time they will have filled the pots with healthy roots, and consequently are in the best condition for forming vigorous flower buds, which should now be left. To secure against a check from early autumn frost, it would be well now to remove the plants into a well ventilated pit, or cool house, and by the second week in October they will be coming into flower, and therefore should be shifted into a dry, well ventilated house, which should be kept at a temperature ranging from 50° Fahr. at night, to 60° by fire-heat, or 75° by sun-heat during the day; thus treated, and by making choice of suitable varieties, an abundant supply of flowers may be insured far into the winter months.

With regard to choice of varieties, observation will prove a safe guide. But I would remark that our nurserymen give us copious lists of varieties—*too copious*: for one-third of the catalogued lists would suffice for every class of purchasers. In some instances they are classified in sections, and also in colours. It would be useful if some idea could also be given of their time of flowering in perfection, for I believe every variety has its season of flowering, as every variety of apple and pear has its season for ripening. It would be a boon if they would give us a list of those best adapted for winter flowering.

There are now numerous varieties that flower freely in the autumn months. Amongst the inferior varieties, *Payne's Perpetual*, *Vesuvius*, *Sobieski*, *Jean Sisley*, and *Leonidas* occur to me as useful. Many of the nosegay section, such as *Lizzie*, *Le Grand*, *Grand Duke*, *Marathon*, *Masterpiece*, *Master Christine*, etc., may be pronounced desirable. In the florists' section of large, finely formed flowers we shall find *Virgo Marie*, *Lord Derby*, *Dr. Lindley*, *Alice Spencer*, *Ianthe*, and *Blue Bell*, particularly suitable. I find *Rienzi*, *Richard Cœur de Lion*, *Nelson*, *Iago*, *Ianthe*, *Rose of Allandale*, *Sir Charles Napier*, and *Jessica*, and very many I have raised but that have never been offered to the public, are more or less good winter flowerers.

If an artistical arrangement of the coloured varieties of the flowering section of the geranium, together with some of the best varieties of the gold and silver tricolors, be made with various foliage plants, such as exotic Ferns, Crotons, Dracænas, dwarf Palms and the like, the effect would be found to be far more strikingly telling than is generally supposed for autumn and winter decoration.

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SUMAC, which is the powdered leaves of *Rhus coriaria*, and is used for tanning, appears to be an important article in the trade of Palermo. The leaves, after being picked and dried in the sun, are simply ground to powder, and for this purpose there are fifteen mills employed in the city, twelve of which are worked by steam. These mills together employ nearly 200 hands, and produce about 20,289 tons annually, of the estimated value of £290,640. The manufacture of olive oil is also an important industry, as is also the cultivation around Palermo of oranges and lemons, which is being extended, but which requires little labour beyond the gathering and packing of the fruit.

December.



## SUMMER MANAGEMENT OF CHRYSANTHEMUMS.

BY JAMES CRUTE, ESQ., SUTTON, SURREY.



WHILE the readers of the FLORAL WORLD are enjoying their chrysanthemums, I wish to say a word on one very important point in their management. To the philosopher the remarks I have to make will explain why the chrysanthemum is so especially a *town flower*; and to the florist, whether in town or country, it will explain one of the great secrets of success and failure. Although I have grown chrysanthemums many years, and taken many prizes, and have been familiar with the collections of other amateurs of this glorious flower, it has but lately occurred to me with any degree of force, that strong sunshine, long continued, is decidedly injurious to the plant. When residing in Holloway my large flowering and Japanese varieties were as fine as any amateur could wish, and they gained me some credit when I exhibited them at the two great shows held in the Guildhall of the City of London, in the years 1865-6. Now that I am located in a more open district, my chrysanthemums are less satisfactory, both in growth and bloom; they appear to miss the London smoke and actually to dislike pure air. Now it may happen that the carbonaceous and other impurities of a town atmosphere benefit the plant in the way of food, but I think the principal reason of the difference is due to the difference in the light to which they are exposed throughout the summer. The garden at Holloway was in some part shaded by large trees and houses, and the air being more or less smoky, the sunshine was modified. Here the plants have no shade from trees or walls, and owing to the greater purity of the air, the sunshine is considerably fiercer, and thus I think the whole case is explained. It is a notorious fact that we rarely see chrysanthemums in the country, even in the best managed gardens, equal to the best that are grown in towns, and hitherto, so far as I know, no one has attempted an explanation. Had I been less an enthusiast in the culture of the flower, the explanation now offered might not have occurred to me, but the plants seem to speak in plain language, saying, "We cannot endure the full glare of the summer sun in this pure air, so next season make a bed for us in some cooler, shadier place!"

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SOLAR HEAT AND VEGETABLE CARBON. — Helmholtz says that in a piece of cultivated land producing corn or trees, one may reckon per year and per square foot of land 0.036lb. of carbon to be produced by vegetation. This is the amount of carbon which, during one year, on the surface of a square foot in our latitude, can be produced under the influence of solar rays. This quantity, when used as fuel, and burnt to produce carbonic acid, gives so much heat that 291 lb. of water could be warmed 1° C. Now we know that the whole quantity of solar light which comes down to one square foot of terrestrial surface during one year is sufficient to raise the temperature of 420,000 lb. of water 1° C. The amount of heat which can be produced by fuel growing upon land is, therefore, only about the 1474th part of the whole energy of solar light.—*Boston Journal of Chemistry.*



## THYME FOR THE FLOWER GARDEN.

BY THOMAS<sup>n</sup> BRADBURY.

MUCH has been said, and deservedly, about the value of dwarf box for edging and embroidery. No one hitherto has recognized the suitability and superiority of the varieties of thymes for the same purposes. Indeed, the very mention of the matter makes me feel that the subject reaches wider and further than I dare follow. But I shall ask the reader to take a quiet look at the thyme in his or her own herb garden. There should be three or four sorts at least in every garden, and these will afford as many distinct characters. Probably the best for embroidery is the common thyme, but the lemon thyme is scarcely less desirable for the purpose; but for an edging I should prefer the tree-like white-flowering thyme, which would be equal to box in firmness and solidity, and would exhale a delightful odour if touched by the rustle of a lady's garments, as an edging must be sometimes. The subject of edgings generally, is one of more importance than might be supposed, considering how little our garden writers say about it. Lately we have seen the ling or heather recommended, but as it requires peaty or gravelly soil, it cannot be universally employed. The thymes will grow in any soil, and therefore are better suited for extensive use.

## BEAUTIFUL TREES AT WEYMOUTH, DORSET.

BY LIEUT.-GENERAL SIR HORATIO SHIRLEY, C.B.



IN common with many other readers of the FLORAL WORLD, I was very much interested in the article on "Beautiful Trees for Kind Climates," and I have made inquiries of the gardener at Abbotsbury, near Weymouth, in reference to the tender trees and shrubs growing there out of doors without protection. I was aware that the late Lord Ilchester had put out many plants in that sheltered spot which would not elsewhere grow out of doors. The gardener has furnished me with a rather long list of such tender plants as grow there out of doors without protection, but he has omitted to mention some fine masses of Bamboos, with which I was familiar some years since. This list is certainly well worth publishing, and it may be mentioned that the Azaleas and Camellias, of which there are good collections, are grown in the shrubbery borders with the Rhododendrons, and do remarkably well; some of the Camellias commence to produce their flowers at Christmas, and the Azaleas begin to bloom freely in March, and in ordinary good seasons there is a fine display of these two beautiful and important classes of flowering plants throughout the spring season.

The present Earl, as well as Lady Ilchester, are, I understand,

very fond of gardening, and it is probable that other tender plants may be put out in the open borders before long.

In my garden Myrtles and other similar plants grow freely out of doors, but they are common everywhere in these parts. If I can afford further information I should be happy to do so, or should you like to see the garden at Abbotsbury, I should be glad to take you there, if you would come to my place in the course of the summer season for a few days.

The list of plants referred to is as follows :—

*Agave Americana*, *A. dasylirioides*.

*Aralia Sieboldi*, *A. longifolia*, *A. spinulosa*.

*Azaleas* comprise a collection of varieties.

*Benthamia fragifera*.

*Camellias* comprise a collection of varieties.

*Cantua dependens*.

*Ceratopetalum apilatum*.

*Clianthus Dampieri*, *Chamærops humilis*, and *C. Fortunei*.

*Drimys Winteri*.

*Edwardsia chrysophylla*, *E. microphylla*, *E. myriophylla*.

*Eriobotrya japonica*.

*Eucalyptus cordata*, *E. globulus*.

*Eurybia furfuracea*.

*Garrya elliptica*, *G. macrophylla*.

*Kerria japonica*.

*Myrsine Africana*.

*Myrtus bullata*.

*Pistacia lentiscus*.

*Pittosporum bracteolatum*, *P. Mayi*, *P. scaberum*.

*Psoralea glandulosa*.

*Punica granatum*, *P. granatum albescens*.

*Rhyncospermum jasminoides*.

*Tasmania aromatica*.

*Thea bokea*, *T. viridis*.

*Viburnum japonicum*.

## FLOWERS FOR CHRISTMAS DECORATIONS.

BY THOMAS TRUSSLER, EDMONTON.



IN decorating indoor apartments and the dinner-table with plants and cut flowers upon festive occasions, at Christmas, and during the winter season, it is of the first importance to employ bright and decided colours. The intermediate shades and half tints, which are so beautiful during the daytime, are of but small value when seen under the influence of artificial light. They are usually so changed by its influence as to present a very dull and ineffective appearance. The same remark holds good with reference to green-leaved plants, for the brighter the shades of green the more effective are the plants

in appearance. In the case of coloured leaved plants, of which the Crotons and Dracenas are good examples, the only safe course is to select those having leaves distinctly marked, or very highly coloured. Happily there are a considerable number of really good things which may be had in perfection during the winter season, and a considerable number of these are within the reach of all who have a greenhouse or conservatory.

In winter decorations the results are not always so satisfactory as could be desired, because sufficient attention is not usually paid by private persons to the appearance presented by the plants when seen under the influence of artificial light. Hence it not unfrequently happens that it is a most difficult matter to dress up an epergne and sideboard satisfactorily during the winter, even when the conservatory is quite gay with flowers.

It would take up too much space to do more than deal with generalities, but even in doing so it is quite possible to convey a few lessons which cannot prove otherwise than useful to those having an imperfect knowledge of the subject.

First of all it must be distinctly understood that purple and its various shades have a very dull and ineffective appearance under the influence of gaslight. Yellow flowers especially, if of a light shade, such as sulphur yellow, are most ineffective, and usually have a dull white appearance. On the other hand, plants having leaves marked with yellow are most ornamental, provided the colouring is rich and well developed. The yellow leaved Crotons, for example, are remarkably rich when well coloured. Scarlet, red, crimson, and bright magenta are the most effective colours. White flowers are of course of great value for associating with the high coloured flowers, and should be freely employed.

In the case of berry-bearing plants, those with orange or vermillion are the most showy when under the influence of artificial light, and those of a deep crimson the least effective. The most useful of the berry-bearing subjects are unquestionably the dwarf-growing Solanums, which are now met with in quantities in all good gardens.

In all cases it is desirable to provide a rich green ground for the proper display of the flowers or plants, and for this purpose there is nothing better than the well-known *Selaginella denticulata*, which may be grown in large quantities without difficulty. Bright green moss, obtained from woods, is also exceedingly good, and in some instances, preferable to the *Selaginella*. The dried moss, which may be procured in packets from the seed shops, can also be used when nothing better is obtainable, but it is not desirable. The *Selaginella* may be grown for furnishing in shallow boxes, but it will be found more readily available when in five-inch pots, as the clumps can then be turned out of the pots and the soil removed without its being disturbed. It is also a very good plan to grow it in shallow tin saucers or pans made to fit the *épergne*, or a large glass dish suitable for placing upon the dinner-table or sideboard. It can then be placed in the *épergne* or dish when required, and a few bright flowers inserted at equal distances apart are a most effective decoration, pro-

vided with but little trouble, and without having to make a havoc amongst the flowers in the conservatory. The pans may of course be used an indefinite number of times, and dressed up differently each time. Small tin tubes, for holding water, should be inserted at regular distances apart in the pans, as the flowers can then be more satisfactorily arranged, and they remain in a fresh condition a much longer period than when they are inserted into the soil. Large shallow pans of earthenware, provided they are well furnished, will be useful for the sideboard or for side tables when dressed with flowers; but they are too heavy-looking for the dinner-table. The *épergnes* may also be filled with wet sand, and covered with moss or *Selaginella* in a careful manner.

Amongst the plants producing flowers suitable for gaslight entertainments, the following may be mentioned as worthy of special notice for the Christmas season:—*Scarlet Geraniums*, *Chinese Primulas*, *Camellias*, *Salvias*, *Euphorbia jacquiniæflora*, *Poinsettia pulcherrima*, *Gesnera zebrina*, and *G. exonienses*, *Azalea amœna*, and *Erica hyemalis*. The most useful of the ornamental-leaved plants are *Dracæna Cooperi*, *D. terminalis*, *Croton angustifolium*, *C. undulatum*, *C. Weismanni*, and one or two others. A number of Palms are also of great value, especially those with light pinnate fronds, such as *Areca lutescens*, *Chamædora graminifolia*, *Euterpe edulis*, and *Kentia Canterburyana*.

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## ON MIXED PLANTATIONS.

BY JOHN MORRISON,

Coneypark Nursery, Stirling.

For this Essay the Author was awarded the Medium Gold Medal of the Highland and Agricultural Society of Scotland.

IN TWO PARTS.—PART II.



IF such a plantation as that described in the preceding number were formed, the valley beneath should be bordered off, in a circuitous winding line, with birch, hawthorn in variety, willow, purple beech, purple sycamore, *Acer negundo variegata*, and scarlet oak. These might be massed according to circumstances, while at suitable intervals single specimens might be inserted, which would preserve a view here and there of the braes and cliffs; while along the same line a fine undergrowth could be given of ivy (*Hedera helix*), the honeysuckle or woodbine (*Lonicera* of sorts), sweet clematis or virgin's bower (*Clematis flammula*), *Mahonia aquifolia*, etc. The opposite side, to the west and south, on same level, ought to be made the counterpart of the margin now described along the drive; while the knoll tapering towards St. Leonards should be massed with birch and larch, which might be extended to the plantation ending at the pinetum. In finishing in this manner we have the most beautiful



variety of colours of foliage, with all the various intervening shades contrasting or blending together. Seen from the glen, the braes and crags form the lower sky-line, with here and there the pines dotted along, and allowing the eye to wander to the very summit of the seat, where again we have the pines as a margin between us and the sky. Covered with such a profusion and variety of trees, this romantic and classic mountain would stand out a much more attractive object in the beautiful landscape than it even now is; while its proximity to such a noble city as the Scottish metropolis, and its being seen to advantage from so many different points, would render it famous to an extraordinary degree. From the summit of the hill, sloping eastwards, a detailed and particular description of the various shelvings or plateaux that occur is perhaps not necessary to be given; it may be sufficient if we keep in view that, for the sake of preserving harmony of colour and general effect, each rising piece of ground of about the same level, although separated by ravines or hollows, ought to be planted with the same variety of trees, such as Scotch fir, *P. Austriaca*, etc., while the hollows themselves may be larch or hardwood alternating; so that from different points of view the lights and shades of the various foliage may be best seen, or even the entire mountain itself made to appear as one vast plantation of the same variety, or very nearly so.

Proceeding in a general way with this extensive planting, we continue our course eastwards by St. Anthony's Chapel and the Hunter's Bog; and for the back part of the chapel a mixture of trees would be required, although the ground should by no means be packed; and at a distance from the ruins the black American spruce (*A. nigra*), Norway spruce (*P. excelsa*), Acacia robinia, and Cedrus deodara; while, more in front, as already proposed, the variegated elder, bird-cherry (*C. padus*) and thorns of sorts. The two shelvings to the south and east of the chapel would have a pleasing effect if planted, the lower one with sugar maple (*Acer saccharinum*), ash-leaved maple (*A. fraxinifolium*), scarlet oak (*Q. coccinea*), and a nice belting of *Pinus laricio*; the upper with *Acer Pennsylvanica*, common oak, and purple beech, and a belting of *P. Austriaca*.

In passing to the south side of the hill from St. Leonards by Samson's Ribs, we come upon a splendid level, suitable for an oak and other hardwood plantation, together with several capital spots for some of our more notable pines. Again we climb the hill-side to the south, and plant in a manner similar to that suggested for the north and east—although the Ribs could be much more easily planted than the Crags; and in this locality there are also some excellent situations for clumps of pines of sorts. Descending to Duddington Loch, it should be surrounded with the Huntingdon willow, Abele poplar (*P. alba*), the black Italian poplar (*P. monilifera*), alder (*Alnus glutinosa*), and, at a short distance from the water, with the birch. At this beautiful sheet of water we stand at the southern boundary of the royal demesne, and here our planting operations terminate.

With such an extent and variety of surface to work upon, anything like a minute detail of the proposed planting operations would

extend this paper to an undue length; but the subject itself is extremely interesting, and the particular topic discussed is a most important matter. Attention is beginning to be directed throughout the country to the desirability and necessity of providing public parks for the recreation of the people, and in some of the cities and towns of Scotland these have already been laid out and planted, and are highly ornamental and much appreciated. I need not say how much the inhabitants of Edinburgh esteem their public parks and gardens, or how much these conduce to the embellishment and beauty of their otherwise magnificent city. But the grounds around Holyrood Palace, including Salisbury Crags and Arthur's Seat, present views of romantic interest and loveliness unsurpassed by any royal demesne in Europe; and their picturesque effect would be immensely increased by some such planting as I have now sketched. With her numerous and efficient educational and literary institutions, why should the "Modern Athens" not also have her "groves of the Academy," to which the sons of learning and science might conveniently retire and find soothing relaxation in the intervals of their severe studies?—

Where rears the ash his airy crest,  
And shines the birch in silver vest,  
And the beech in glistening leaves is drest,  
While dark between shows the oak's proud breast,  
Like a chieftain's frowning tower.

And surely for the tourist no greater attraction could be added to the many already abounding in the city and its suburbs than the grateful shelter which might be afforded by the sweet sylvan retreats around the famous Palace of Holyrood. Coming to inspect the stately structure and its historical curiosities, he might also mark

What time in many-coloured bowers,  
Pale autumn wreaths the latest, loveliest flowers;  
The rich luxuriance mark of every view,  
The mild and modest tint, the splendid hue,  
The tempered harmony of various shades!

## THE CHRYSANTHEMUM AS A CONSERVATORY FLOWER.



THE cultivation of the Chrysanthemum has, within the last few years, been widely extended, and in November it is by no means unusual to meet with splendid displays of this noble autumnal flower in gardens, in which, a few years since, a few plants of the most inferior of the pompon varieties were alone to be found; notwithstanding this fact, it cannot be said that the Chrysanthemum as a conservatory flower is appreciated to the extent it should be. Its grandeur is unquestioned, and in its season it has no competitor, for there is scarcely anything to be seen in the way of floral beauty at the same time of year, for such things as we find in bloom are either past

their best or not yet arrived at it. Take the Poinsettia for example, and it may safely be said that we do not need it for another month at least, though it may be supposed to be in perfection from the 1st of November onwards. One good reason, perhaps the sole reason, why the Chrysanthemum is regarded with less favour than it deserves, is that it flowers at a season when the wealthy are least in need of flowers. Certainly in great cities, where it is better cared for than in country places, it finds less favour from the great, and is especially the flower of the humbler classes,—for in one case it is the gardener's especial pet, and in another the only flower the mechanic can hope to grow creditably,—yet at many country seats, where hunting and shooting keep a good company together until late in the year, this splendid subject ought to have much more attention than it obtains; for it is not only capable of affording a substitute for other flowers during six or eight weeks of the gloomiest period of the year, but it offers more variety than any other subject that can be obtained in flower at the same season. Let us just consider what flowers are available for November and December. Out of doors we may say there are none at all except these, and they last as long as weather allows them. Within doors the Poinsettia, the Camellia, the Thyrsacanthus, and a few heaths make up the November garland; and if the Chinese Primula, and the Persian Cyclamen be added, the catalogue is complete of subjects that contribute in any eminent degree to the production of a display. The Chrysanthemum literally supersedes all these things while it lasts, and we may consider it good for six weeks. As to variety, it is true we want brighter shades of red and crimson; but we have superb shades of white, blush, yellow, and rose colour, and the grand outlines of the best specimen blooms afford a pleasure to appreciative eyes altogether distinct from that resulting from a rich display of colours. No one who has seen Chrysanthemums well done can remain indifferent to their beauties and their uses. In a few private gardens we have seen collections of these flowers so well grown and so tastefully grouped, that we are compelled to marvel that in so many places where a display at this season would be appropriate the Chrysanthemum meets with but small attention. There is, indeed, in many minds a prejudice against it—perhaps because it has always been a middle-class subject, not costing thousands of pounds to obtain a few plants, or requiring elaborate treatment in its cultivation. That there are defects in the flower itself cannot be denied; perhaps we may find defects in the customary modes of displaying them; perhaps also there may be something wanting to render exhibitions of Chrysanthemums largely attractive and satisfactory; and if these several defects are removed, we may hope to see the Chrysanthemum rise rapidly in the estimation of persons possessed of means and taste.

Let us look to the flower itself. We find in its varieties pure white, delicate shades of blush and pink, and the purest tones of yellow. There is no pure red, no pure crimson, no true purple. Nevertheless many of the intermediate shades of colour are agreeable, and when skilfully harmonized effective; for example, if we see a

good specimen plant of Pink Perfection contrasted by association with one of the good dark kinds, we forget the defect of colour in our admiration of a beautiful object. There is no pink chrysanthemum of so bright a tint as Amaranth geranium; no red chrysanthemum so brilliant as Charles Backhouse dahlia; no crimson chrysanthemum equal in colour to Duke of Edinburgh rose. But we may search far and wide and not find a yellow flower to surpass in purity and depth of colour a fine Golden John Salter, and if we are to make comparisons in a large manner, we shall have to take into account the time at which our favourite arrives at perfection, when there are no other flowers with which to compare it. Nevertheless, as critics we are bound to lament the absence of certain shades of colour commonly met with amongst flowers in this useful subject; and as we have seen immense improvement effected in the varieties, we will hope that cross-breeding and careful selecting may result at last in the production of the pure tints of red, crimson, and purple, which are as yet so conspicuous by their absence.

In the grouping of the large flowered and Japanese varieties for display, the greatest difficulty is to hide their legs. When grown as round-headed dwarf bushes, we should prefer not to hide any portion of the plant; even the pot ceases to be inelegant, the symmetry of the whole from head to foot is so complete. This is the form best adapted certainly for the embellishment of the conservatory, and the one that gentlemen's gardeners should mostly give their minds to. But the tall plants, grown for the supply of a few of the very finest flowers, are scarcely so elegant that they may be obtruded upon the view in their entirety without inspiring unkind criticism. We have enjoyed the magnificent flowers more when the gaunt plants were intermixed with masses of foliage, out of which the flowers spread majestically on stems varying from six to eight feet high. Messrs. J. Veitch and Sons, King Road, Chelsea, overcome the difficulty created by their legginess, by grouping them with specimen camellias, the dark foliage of which brings out the colours of the flowers to the best advantage; there can be no doubt that the beauty of a display is very much enhanced by the free association with the Chrysanthemums of plants that attract attention by the distinctive character of their foliage. We are the more anxious to impress upon our friends the necessity of tasteful display after they have given the flower all their skill, because there is a notion prevalent amongst Chrysanthemum growers, that good examples of their favourite need no assistance from other subjects when grouped for the purposes of decoration, which is a mistake.

In very many cases, good displays of Chrysanthemums may be produced by plants lifted from the open border and potted. The plants will lose a considerable proportion of their leaves; but, if intermixed with the ordinary occupants of the conservatory in such a manner that the flowers only can be seen, the absence of the foliage upon the lower branches will not be a matter of great importance. The pompon varieties suffer least from lifting, but they are not capable of producing such a grand display as the large-flowered Japanese and other varieties.



The cultivation of the *Chrysanthemum* for conservatory decoration is remarkable for its simplicity. If the cuttings are struck in February or March, potted off when nicely rooted, and the plants shifted on, as occasion requires, until they are put in the pots in which they are to bloom, the result will be a grand display of colour during November and a part of December.

The plants will require shifting twice—the first shift being into six-inch pots, and the second into pots nine inches in diameter. To form bushy specimens, stop them twice; the first stopping being performed when they are nicely established in the three-inch pots in which they were put when potted off separately, and the second when in the six-inch pots. They must have an open position during the summer season, and be well supplied with water. Sometimes the foliage will be attacked with green-fly, but this pest can be kept in subjection by dusting the leaves with tobacco-powder. To ensure fine flowers, the buds must be thinned to one to each shoot, the terminal bud being usually the best to preserve. S. H.

## GARDEN BOWERS.

BY A KENTISH GARDENER.



PROPERLY constructed, a summer-house or bower, when nicely covered with climbing plants, is so much appreciated during the summer months, that I trust you will afford me space in the pages of the *FLORAL WORLD* to make a few remarks upon the subject; I feel assured they will be useful to amateurs, and before commencing to deal with the details, I would observe that now is the best time for planting climbing and other hardy plants, as they will obtain sufficient root-hold before the winter to enable them to make a vigorous growth in spring.

To have suitable, well-made bowers in a garden, and to cover trellises well, are matters of importance. Frequently the plants are badly selected, subjects are used that are disagreeable from some causes or other, and therefore we rather take an interest in gathering together those really suitable, and a considerable amount of practical knowledge of the work is essential to a proper performance. It should be remarked that many of the plants suited for bowers, are equally well adapted for trailing over stumpy places, rough banks, and rough rockeries; notably, the vines with which we begin our selection. The following kinds of vines are simply useful for their trailing power, so to speak:—*Vitis æstivalis*, *V. cordifolia*, *V. heterophylla variegata*, *V. riparia*, *V. Sieboldii*, *V. vinifera apifolia*, *V. vulpina*; useful for falling over rocks, for low trellises, and even for bedding out.

We ought, perhaps, to commence with the Ivies; for this purpose certainly nothing can equal them as evergreen coverings for bowers. One of the prettiest bowers (for winter) that we have seen

was covered with the Irish ivy. It was simply like a great isolated niche, not deep, and with no sides, so that the light could play on the inside nearly as well as on the outside; the glistening verdure of the ivy was as pretty inside as outside, as the thing was placed in a position where it caught every ray of sun. It formed a most agreeable bower at a season when such things are rarely resorted to.

Of course, many of the beautifully marked kinds may be trained in like manner. Indeed, the various variegated ivies will soon become indispensable to the good garden of hardy plants; they are so nice for walls, trellises, or even for edgings in not a few cases. But however pretty the marked kinds may be, they can in no degree compete with the common Irish ivy as a rich green covering. Our true plan of dealing with them will be found to be in employing the best forms sparsely among the green kinds, or among other green plants. To meet with a good variegated form now and then amidst glistening green is charming; to plant a great number of them together for the mere sake of the collection is a mistake. To allow the ivy to trail over rough mounds, etc., is a favourite plan of ours, and we have even found it desirable to make mounds for this purpose in a picturesque pleasure-ground—planting specimens of yucca over the ground-work of ivy, and allowing a nice tuft of a variegated sort to fall here and there over a stone, or near the edge, so that it might be well seen amongst the mass.

The next plants to which we have to call attention are the hardy *Aristolochia sipho* and *A. tomentosa*. Here are two capital plants for bowers, or for covering any surface with fine and distinct leaves. What is so fine for covering a bower, and running up a stake so as to form a pyramid of distinct foliage? One of the prettiest things we have ever seen was a tent or wigwam formed of *Aristolochia sipho*. In the first case, a number of long but useless branches were placed so as to form a frame-work, meeting at the top of course. Then *Aristolochia sipho* was planted all round, and soon it ran up to the top and formed a capital roof—a pleasanter wigwam you could scarcely see. *A. tomentosa* is quite a distinct species, and equally desirable with our old friend. Its leaves are of a yellowish tone, and slightly tomentose. It will prove capital as a deciduous covering for a bower of any kind, for forming pyramids in a varied garden, and for many other uses which will readily suggest themselves to the amateur who has once secured possession of this distinct plant.

There are some kinds of Clematis capital for bowers; notably the beautiful white *C. montana*, and the fragrant *C. flammula*. The last is a splendid thing to grow wild over old stumps, or on wild banks, etc., as it diffuses a most delicious odour over the garden in the late autumn; in fact, it is as valuable for this purpose at the end of the flowering season as the hawthorn is in May, or more so, for it flowers a long time. The common Clematis, *C. vitalba*, often forms picturesque sheets of vegetation, drooping from trees, etc.; but it should, as a rule, be confined to the rougher parts of the garden. We have seen one or two very charming natural arbours formed from this, where it grew up oak or other trees, and then fell down in a mass. All that had to be done was to make an opening,

and perhaps cut away a bit here and there. The new varieties of Clematis recently raised by Jackman, Noble, and Cripps, are of course capital for the trellis; but they must not be associated with such things as montana or flammula, which would run over them; but, on the other hand, be reserved for the smaller and more select kind of trellis. On such they will prove very beautiful. The following is a list of kinds to be obtained in British nurseries, most of them worthy of a trial. Wirings of some kind are so often desirable in gardens nowadays, that they will be found most acceptable to many. If instead of employing hedges, which require clipping often, we employed a covered trellis, how much more tasteful it would look, at least for the minor divisions of a garden!

*Clematis azurea grandiflora*, *C. Standishii*, *C. Fortunii*, *C. Hendersonii*, *C. Jackmanii*, *C. lanuginosa*, *C. montana*, *C. nivea*, *C. patens* *Amelia*, *C. p. Helena*, *C. rubro-violacea*, *C. Sieboldii*, *C. tubulosa*, *C. viticella*, *C. v. fl. alba*, *C. v. venosa*.

In covering bowers, it should be considered whether we wish them to be deciduous or not. Possibly, if they be near the house, it may be disagreeable to have them covered in winter. By using herbaceous plants which grow strongly in summer, and entirely sink under ground in winter, we may have pleasant shade and flowers in the summer, and not a vestige of naked or ragged vegetation in the winter; in fact, none at all. One of the best plants in existence for bowers of this class is *Convolvulus dahuricus*, a pink species, something like the common convolvulus—so much so, that many say it is the same—but it is larger and finer. There is also a white form of the same plant. They run up houses when trellised or trained, up railings, etc., beautifully. It is much better to put this plant in a position where it cannot ramble about, and become a weed. *Calystegia pubescens fl. pl.* may also be used in the same way. We know of nothing prettier on a railing than *Convolvulus dahuricus*. *Wistaria Sinensis* is not so often seen as a bower as a wall plant; but it may be used in almost any way. We have seen it trained to run from the ground up to trees on strong wires, but perhaps a more graceful use could not be made of it than to train it over a slender arch over a garden wall. It may in many cases be desirable to have a trellis-work covered way in a garden, this trellis-work to be covered with plants, and shady in summer, and quite bare and clear in winter. The Common Hop or the Virginian Creeper are most valuable for this purpose, as also is the annual *Convolvulus major*.

Again we may have *Jasminum revolutum*, *Lonicera confusa*, *L. flava*, *L. aureo-reticulata*, and *L. periclymenum*; warm wall for most of these. The Common Honeysuckle, one of the best plants in existence, *Roses* of many kinds, *Lycium Europæum*.

Several annual plants are valuable for trellis-work, and the best are *Abronia umbellata*, *Cobea scandens*, *Sweet Peas*, *Tropæolum* of kinds, *Maurandias* in varieties, *Loasa* in varieties, *Lophospermum*, *Scyphanthus elegans*, *Thunbergias* in warm parts only, *Gourds* and *Scarlet Runners*, and lastly, much the best of all, the beautiful varieties of *Convolvulus major*.

## THE GARDEN GUIDE FOR DECEMBER.

**KITCHEN GARDEN.**—According as the weather and the state of the soil will permit, make plantations of rhubarb, seakale, asparagus, and horse-radish. Roots of dandelion, packed together in leaf-mould, and put into gentle heat, will furnish a delicate salad in five or six weeks. Seakale pots are best for covering the roots. Keep dung and all soluble matters under cover. Turn over manures, and put aside in heaps to be frozen, rotted leaves, and other material suitable for potting, and when well sweetened and pulverized, remove to bins in the potting-shed to keep dry for use. Get sticks and stakes tied up in bundles ready for use; wheel turf and weeds to the muck-pit; get pots washed and sorted over, and crocks shifted into sizes for the potting-bench.

**FRUIT GARDEN.**—In all planting operations let nothing lie in by the heels an hour longer than can be helped. Bush fruits properly taken up and properly planted ought not to miss the move in the slightest degree, but you are sure to lose a whole season if they lie about waiting to be planted. Root-prune any trees that grow too luxuriantly to bear well. Lay boards in a slope over vine borders, to shelter them from excessive cold rains. Unnail from the walls the younger shoots of tender wall-trees, to prevent premature breaking. Strawberry-beds may be made this month, but there is no certainty of a crop if left so late.

**FLOWER GARDEN.**—At this season of the year it is important to keep everything as tidy as possible. If any bulbs remain out of the ground, get them in without delay. Take up tea-roses, and lay them in by the heels in a shed out of reach of frost. Cut down fuchsias that are to remain out all the winter, and cover their roots with coal-ashes. Pansies, pinks, and other choice things in open beds, should have a little litter sprinkled over them in frosty weather, or be protected with canvas on hoops. Tulips protect in the same way. Keep auriculas and other plants in frames moderately dry, and free of dead leaves.

**GREENHOUSE AND STOVE.**—In the earliest vinery the vines will want frequent attention and a very regular heat. Ericas must have air at every opportunity, and if brought in with flowering shrubs to be forced, must be very gently stimulated, as they are impatient of heat. Soft-wooded plants must have fire-heat during foggy weather as well as during frost. Greenhouse 40° to 45°.

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**GREEN FLY ON ROSES.**—*A. J. W.*—Dipping the shoots in tobacco-water, or in an infusion of quassia-chips, made by steeping 2 ozs. of the chips in a gallon of water, can be highly recommended. The water should be poured on the tobacco or quassia-chips when boiling hot, and then allowed to stand until it has become quite cold. A little size mixed with the water when hot will ensure its adhering to the foliage much better. Dusting the foliage with tobacco-powder will be found one of the best remedies. The foliage must be moist when the powder is applied, and it should be washed off in about twenty-four hours after its application. Thorough washings with the garden-engine will also materially assist in the removal of the pests.



## HORTICULTURAL AFFAIRS.



THE EXHIBITIONS OF CHRYSANTHEMUMS have this year been of unusual excellence, and demonstrated in the most forcible manner the fact that these noble autumnal flowers are steadily gaining ground in the estimation of the general public. Although the season has not been so favourable for the production of fine blooms as the growers would wish, the cut blooms were contributed to the various exhibitions in immense numbers, and in the finest possible condition. Mr. Adam Forsyth, of the Brunswick Nursery, Stoke Newington, has had, as usual, a splendid display of specimen and untrained plants, comprising examples of all the varieties included in the several classes at present in cultivation. Messrs. James Veitch & Sons, King's Road, Chelsea, have also had a capital display of large flowered varieties in their large camellia house; and Messrs. S. Dixon & Co., Hackney, have held in their nursery a very meritorious exhibition of untrained and trained specimens.

The exhibition season was commenced by the exhibition of the STROKE NEWINGTON SOCIETY, in the Assembly Rooms, Church Street, on the 11th and 12th ult. This was followed by the exhibitions of the ROYAL HORTICULTURAL, LEWISHAM, and BRIXTON HILL, WOOLWICH, NORTH WESTERN, SOUTH LONDON, SOUTH ESSEX, NORTHAMPTON, PETERBOROUGH, and LIVERPOOL Societies, all of which were of the most meritorious character.

BOTANY AT THE BRITISH MUSEUM. — Mr. W. Carruthers has just issued his official report for 1872 of "The Department of Botany in the British Museum." The additions to the herbarium during the year are spoken of as large and important, rendering more and more pressing the necessity of increasing accommodation for the arranged herbaria. The species included under several of the natural orders, both in the general and in the British herbarium, have been entirely re-arranged during the year; and much use has been made of the herbarium by botanists preparing monographs for a number of different publications. Numerous interesting additions have also been made to the structural series, both in the fruit, the fossil, and the general collections.

POTATO IMPORTS. — The Board of Trade's statistics of imports tell us that in just the four months from the 31st of last December till the 30th of April, instead of importing foreign potatoes to the value of about £79,000, as we did in those four months last year, or to the value of less than £14,000, as we did in the first four months of 1871, we have actually spent £1,300,000 this year in the purchase of our neighbours' potatoes. That we should have bought all these vegetables wherever we could get them, to supply our own deficiency, is not wonderful, for the English are accustomed to go to the foreign market with their money in their hands, and to obtain what they want if the article is to be had; but that such an enormous increase of supply should be available on an unforeseen emergency, and that we should have taken them and have eaten them as we have, hardly knowing the difference, is surely remarkable, and a splendid testimony of the elasticity of our commercial system.

COLOUR OF FOLIAGE. — The impurity of natural colours is strikingly illustrated by an observation recently communicated to me by Mr. Woodbury. On looking through a blue glass at green leaves in sunshine, he saw the superficially reflected light blue. The light, on the contrary, which came from the body of the leaves was crimson. On examination, I found that the glass employed in this observation transmitted both ends of the spectrum, the red as well as the blue, and that it quenched the middle. This furnished an easy explanation of the effect. In the delicate spring foliage the blue is for the most part absorbed, and a light, mainly yellowish green, but containing a considerable quantity of red, escapes from the leaves to the eye. On looking at such foliage through the violet glass, the green and the yellow are stopped, and the red alone reaches the eye. Thus regarded, therefore, the leaves appear like faintly blushing roses, and present a very beautiful appearance. With the blue ammonia-sulphate of copper, which transmits no red, this effect is not obtained. As the year advances, the crimson gradually hardens to a coppery red; and in the dark green leaves of old ivy it is entirely absent. Permitting a concentrated beam of white light to fall upon fresh leaves in a dark room, the sudden change from green to red, and from red back to green, when the violet

glass is alternately introduced and withdrawn, is very surprising. Looked at through the same glass, the meadows in May appear of a warm purple. With a solution of permanganate of potash, which, while it quenches the centre of the spectrum, permits its ends to pass more freely than the violet glass, striking effects are also obtained. Both in foliage and in flowers, we have striking differences of absorption. The Copper Beech and the Green Beech, for example, take in different rays. But the very growth of the tree is due to some of the rays thus taken in. Are the chemical rays, then, the same in the Copper and the Green Beech? In two such flowers as the Primrose and the Violet, where the absorptions, to judge by the colours, are almost complementary, are the chemically active rays the same? The general relation of colour to chemical action is worthy of the application of the method by which Dr. Draper proved so conclusively the chemical potency of the yellow rays.—*Tyndall's Lectures on Light.*

## TO CORRESPONDENTS.

GERANIUMS, GREENHOUSE, ETC.—*Per Mare, per Terram.*—In reference to the first question, we would advise you to prune them back rather severely, taking care of course to prune them into a symmetrical form. They should be allowed to remain out of doors until the end of the month, and then be removed to a frame or greenhouse, where they can be placed near the glass. Keep them rather dry at the roots during the winter, and in the spring shift them into larger pots and use a compost consisting of turfy loam, leaf mould, and silver sand, the loam being employed at the rate of three-parts to one-part of the leaf-mould. Sufficient sand will be required to give the compost a gritty feel, but usually a sixth-part of the entire bulk will suffice for this. The Azaleas and Camellias should be kept in the greenhouse, and receive sufficient water to maintain the soil in a moderately moist state. The small shoots which are pushing up from the base of the azalea should be removed, as most likely the plants are grafted upon stocks raised from seed. A very good liquid manure for plants in pots may be obtained by mixing two ounces of guano, and a handful of soot, with three gallons of water. The drainings from the stable, when diluted with about four parts of water, is also very useful for the assistance of plants in pots. The assistance of liquid manure is of more importance for the encouragement of the plants previous to their coming into flower, than at any other period. The FLORAL WORLD has been in existence fourteen years, and a considerable number of the back numbers and volumes may be obtained from the publishers. Celine Forestier and Marechal Neil will be the two best roses for the greenhouse. Strong plants may be purchased for half-a-crown each, or less.

VIRGINIAN CREEPER.—*Ampelopsis.*—The plants have not sufficient root-room in boxes eighteen inches long, eight inches wide, and two inches deep. They should be planted out in the border or in boxes containing about a square yard of soil; the boxes should at all events be much larger than those at present in use, if vigorous growth is desired.

Old Subscriber.—We trust you will be long spared to grow older and older and wiser and wiser, and that you may some day become convinced that brevity is the soul of wit. In the meantime, while your wisdom teeth are growing, please send ready-made replies with any queries you may honour us with.

GRAPES.—*Young Gardener.*—The Black Hamburgh is the best of the varieties mentioned for ground vineries. With good management excellent crops may be obtained. The other plant mentioned does not require any special system of culture, but it does not usually flower freely until it has become well established. It is essential that the plant should not be shaded by climbers trained to the roof.

PANSIES DYING.—*An Anxious Amateur.*—The roots of the pansies have been eaten by the wire-worm. This pest may be trapped by inserting carrots in the border between the plants. They will require to be drawn out and examined occasionally for the purpose of destroying the wire-worms which will have attacked them.

GLADIOLI.—*A.D., Tarbolton.*—There is no known remedy for the disease. Good cultivation is the best means of preventing its doing much harm. There is no

stimulant that would produce the effect desired. To preserve the spikes as long as possible, cut off the end of the stem every day, and finally put them in hot water.

TEUTSCHEL & Co.'s BOOK ON LILIES.—Two mistakes occurred in our notice of this useful little book, and of course we gladly correct them. The book will cost 2s. 8d. if ordered through the post, and the proper persons to apply to for it are Messrs. Teutschel & Co., Colchester.

TORREY BOTANICAL CLUB.—*R. W.*—This club was established in New York on the 7th of January, 1873, under the presidency of Dr. Torrey, who died soon afterwards. The present president is Mr. George Thurber. In the last published "Bulletin" of the club occurs the following passage:—"The club holds its meetings at the Herbarium in Columbia College, in the evening of the last Tuesday of every month, July and August excepted, and all botanists, either residing in or visiting the city, are invited to attend; or, if they cannot be present at that time, to call on the president of the club at 245, Broadway, or on the secretary at the Herbarium."

WINTER FLOWERING HEATHS.—*C. H. F., Belmont House, Bexley.*—The plants should have been cut back after the beauty of the flowers was past. They should be pruned next March, and after they have commenced to make new growth shift them into pots one size larger. Use sandy peat, and press the new soil very firm between the old ball and the sides of the pot. It is very important that the soil in which the plants are growing should be moist when they are potted, or the moisture will soak through the new soil, and the plants suffer in consequence. They should be kept near the glass at all times, and after the end of May place them in an open position out of doors, and stand the pots upon a bed of coal ashes. They should be pruned back moderately, and the new shoots be allowed to grow unchecked during the season. As a rule, the shoots produced the previous year should be cut back to about two inches of the base, but in your case it will be necessary to prune them to within three inches or so of the base of the wood made the previous season. If at any time the soil should become dust dry, stand the pots in a vessel of water, and allow sufficient time for the soil to be thoroughly moistened. A very considerable amount of technical knowledge is necessary in propagating heaths, and we are not surprised at your being unsuccessful. We should advise you not to attempt their propagation; it would be much better to purchase small plants established in three-inch pots.

BEDDING PLANTS.—From the high recommendation given in the FLORAL WORLD, I have procured plants of *Coprosma Baueriana variegata*, *Stellaria graminea aurea*, etc. 1. Would you kindly inform me if the *Coprosma* is a hardy, half-hardy, or greenhouse plant; and how and when propagated? 2. Is the *Stellaria* raised from seed? And if so, does it come true, like Golden Feather Pyrethrum; or is it propagated from cuttings of the latter? I presume it requires keeping in a greenhouse temperature through winter? 3. I ordered a plant of *Veronica incana*, and have had sent (from Cannell, Woolwich) for it *Santolina incana*. Is it the same thing under another name? *S. incana* looks like a half-hardy plant that can be kept in a cold frame; or is it perfectly hardy, think you, in these northern latitudes? I have had *Cineraria maritima* survive through winter in the open air in a somewhat sheltered place, but it does better in a cold frame. 4. Do you think *Stellaria g. aurea* is likely to supersede Golden Feather Pyrethrum (I see 'J. Walsh' puts it first)? People hereabouts are getting tired of the Pyrethrum Golden Feather; but it is so easy to raise, and comes so true from seed, that I fear it will be some time before we have anything to surpass it. A variety with the golden leaves and double crimson flowers would be an acquisition. I almost wonder no one has succeeded in producing one. Hoping you will pardon my tiresome inquiries, and with great appreciation of your many and valuable contributions to the science of horticulture. JOHN F. CRANSWICK,

Chapeltown, near Leeds. [1. *Coprosma Baueriana variegata* succeeds admirably in a greenhouse or conservatory. It is most readily propagated by layering; and cultivators who grow it largely usually lift the plants from the flower-beds, and plant them in a bed of soil made up in a pit. The shoots are then pegged down, and covered with light sandy soil; and by the following spring are well furnished with roots, generally throughout the entire length of the stem, which admits of their being cut up into as many pieces as there are young shoots. Cuttings are very difficult to strike, even with the aid of a properly-constructed propagating-pit. 2. *Stellaria*



*graminea aurea* is quite hardy, but the stock intended for bedding purposes should be wintered in a cold frame. It is propagated by cuttings. The Golden Feather Pyrethrum is not likely to be surpassed by it, although it is very meritorious. 3. *Veronica incana* and *Santolina incana* are perfectly distinct. The former has leaves about four inches in length, and one in breadth, and of a silvery grey. It is very dwarf, keeping close to the surface of the soil. The *Santolina* should be wintered in a cold frame.]

ROSES.—A. B.—All the varieties may be kept down to the desired height by stopping the young shoots when about fifteen inches in height. The shoots referred to are those which push up from the base after the flowering-shoots are produced. All the shoots will require to be pruned low down at the winter pruning. The border mentioned is quite unfit for roses, and you will experience nothing but disappointment if you plant them in it.

TOWN ROSES.—You would oblige me, and no doubt many more of your readers, by giving us a list of what you consider the best twenty-four roses, new and old, for London gardens. There have lately been many new additions highly praised in nursery catalogues, but the few I have seen in one or two exhibitions of this year I can make nothing of. Exhibition roses are no guide for open-air growing in London, nor for indoor growing where amateurs with little experience and less skill are concerned. At least, that is my experience, and I may add that in roses out of doors even I have never been able to come near Paul and Sons, either in size or colour. Mostly my roses come much smaller, and frequently of quite a different shade of colour, than I have seen them at Cheshunt. There are a few exceptions, as, for example, *Duke of Edinburgh*, *Baroness Rothschild*, and *La France*, which I have found in every way satisfactory, and what I would call up to the mark, free in growth, handsome and prolific in flowering. *Gloire de Dijon* comes next, but shows dark orange colour with me, and, though a free bloomer, makes not sufficient growth. The rest have disappointed me: *Marechal Niel* never shows me a flower, though I have had him in the garden and the house for four years; *Prince Camille de Rohan* comes very small; *Charles Lefevre* blooms very sparingly; *Miss Ingram* makes wood, but no flower; *Boule de Neige*, *Duchesse d'Orleans*, *Madame Vict. Verdier*, *Marguerite de St. Amand*, *Queen Victoria*, come weaker every year, and threaten to die out entirely. The foregoing are standards; I propose now to say something of the dwarfs. Of dwarf roses I obtained about two dozen on *own roots* last summer from Mr. William Paul's nursery. I have now about six left, and those have made *very little growth* and *no flowers*, whilst two or three plants on Manetti stock, which I bought successively in Covent Garden Market, grow and bloom with sufficient vigour. One of them (the oldest) is a regular bush now, and never ceases blooming, showing me what a pleasure a really good rose can give. Unfortunately I have no name to it, but I suspect it to be *General Jacqueminot*. All my own root roses are poor tender things, looking as if they wanted any amount of patience and coddling to make them grow a little, whilst I feel tempted to pull them up and throw them away. Excuse the length of my epistle; I love the rose, but if I cannot succeed a little better, in spite of money spent and care given, I shall give up rose growing in London. But perhaps you can name a few roses which I have not had, and which would be more suitable. It is no use asking the growers, they seem to call everything suitable which they have.—R. Schilbach, *Highgate*. [This correspondent endeavours to lay his case before us with fulness and candour, as, indeed, is generally the case; but he has failed, as, we are bound to say, is also generally the case. But we have obtained a clue to it, for he says his standard *Gloire de Dijon* does not grow freely, and we conclude therefrom that his roses, in common with many others, are humbugged. That his own root roses dwindle away is consistent with the failure of *Gloire de Dijon*, for this grand rose will grow well in any soil or situation, if it has fair play. Our friend may value own root roses more highly when he has done justice to them. But he will expect us to explain. Well, not being gifted with miraculous powers, we cannot. Perhaps they are planted so loose that a child might pull them out of the ground; in such a case treading the plot would do some good. Perhaps he planted own root roses too early in the season, and they were killed with frost before they could take hold of the soil, for pot roses that have been carefully nursed all the winter under glass should not be put out until the 20th of May. Perhaps the man who digs the ground only scratches it. Perhaps the manure paid for and



actually dug in is not so good as it looks. That roses can be grown well at Highgate does not need to be demonstrated: and, to speak plain, there must be something very wrong in the garden where they will not grow. However, a list of town roses may be useful to many readers, and we recommend the following: Alfred Colomb, Baroness Rothschild, Baronne Prevost, Charles Lefevre, Duchesse de Morny, Duke of Edinburgh, Elie Morel, Eugene Appert, François Treyve, François Lacharme, General Jacqueminot, Gloire de Dijon, La France, Jean Goujon, John Hopper, Jules Margottin, Louise Darzins, Madame Charles Wood, Madame C. Joigneaux, Madame Cambaceres, Madame Domage, Madame Knorr, Marguerite St. Amand, Pierre Notting, Prince Camille de Rohan, Vicomte Vigier, Vicomtesse Vezins, Victor Verdier, Emotion, Rev. H. Dombrain, Mrs. Bosanquet, Pavillon de Pregny, Devoniensis, Madame Falcon, Narciss, President, Souvenir d'un Ami, Vicomtesse de Cazes.

CONIFEROUS TREES FOR DRY SOILS.—*H. M.*—The most desirable of the coniferous trees which may be successfully cultivated in dry soils are included in the following selection:—*Abies excelsa*, the well-known spruce fir, well adapted for planting on dry soils. *A. excelsa Clanbrasiliana*, a very small and interesting variety of the preceding. *A. nigra*, a tall tree of an ornamental character, succeeding well on dry soils. *A. orientalis*, a most elegant tree, of moderately rapid growth, succeeding well in dry situations. *A. Douglassi*, a well-known handsome tree, growing freely in dry gravelly soils. *Araucaria imbricata*, a very distinct and handsome tree, thrives when planted in moderately dry soils. *Cedrus Atlantica*, a free-growing handsome tree of large size, succeeds well in dry situations. *C. deodara*, a well-known handsome growing tree, well adapted for planting on high and moderately dry soils. *C. Libani*, a handsome tree, well adapted for planting on high or dry soils. *Juniperus sabina*, a low branching shrub, growing freely in dry soils. *J. squamata*, a robust branching shrub, well adapted for planting in hot, dry situations. *J. occidentalis*, a tall tree of a handsome character, valuable for planting on very dry and sandy soils. *Larix Europæa*, the well-known larch, succeeds on dry stony soils in bleak situations. *Pinus cembra*, a free-growing tree, of noble character, well adapted for dry soils. *P. halepensis*, a low spreading tree, thriving in a dry exposed situation. *P. halepensis Pityusa*, a larger and more compact growing variety of the preceding. *P. inops*, a low spreading tree, well adapted for planting on dry sandy soils. *P. Pinaster*, a distinct and handsome tree of large growth, thriving on dry sandy soils. *P. sylvestris*, the well-known Scotch fir, well adapted for dry and exposed situations. *P. Jeffreyi*, a strong-growing noble tree, succeeding on poor dry soils. *P. Lambertiana*, a noble tree of free growth, well adapted for planting on dry sandy soils. *Pinus monticola*, a tall handsome tree, which thrives admirably on dry stony soils. *P. strobus*, a tall tree, well adapted for planting on moderately dry soils. *Pseudo-larix Kämpferi*, a light elegant tree, of free growth, succeeding well on dry soils. *Retinospora obtusa*, a very handsome medium-sized tree, well suited for planting on sandy soils. *Taxus baccata*, the common yew, succeeds when planted in dry or wet soils. *T. baccata fructo-lutea*, a distinct variety, with yellow fruit, thriving under the same conditions as the species. *Thuopsis borealis*, a very ornamental tree, of medium size, succeeds well on dry soils. *T. dolabrata*, a medium-sized tree, of great beauty, adapted for planting in moderately dry soil.

EDGING OF SELAGINELLA.—*Mrs. W.*—The conservatory border would look well with a band of this pretty little lycopod growing round the margins. It is a very easy matter to manage. Dig up the soil say a foot or fifteen inches wide, and mix plenty of sand with it. When this is completed, make the surface firm and level with the back of the spade, and sprinkle a thin layer of sand over it—coarse river-sand will do; and, finally, give a watering to settle the soil, and dibble in small pieces about three inches apart each way.

CONIFEROUS TREES FOR THE SEASIDE AND EXPOSED SITUATIONS.—*H. R. B.*—Several of the coniferous trees do exceedingly well on the sea-coast, if they are not too fully exposed to the spray. The hardiest, and those best adapted for exposed situations and the seaside, are:—*Abies Canadensis*, a free-growing tree, suitable for fully exposed situations; *A. Douglassi*, a fine tree, growing freely on the sea-coast; *A. excelsa Clanbrasiliana*, a dwarf variety of the Norway spruce, suitable for bleak situations; *A. excelsa pygmaea*, a dwarf bush, suitable for the seaside and bleak situations; *A. Menziesii*, a free-growing tree, suitable for the seaside or exposed

situations; *Araucaria imbricata*, a desirable tree, for moderately exposed situations; *Cupressus Lambertiana*, a beautiful tree for sheltered situations near the seaside; *C. Lawsoniana*, a valuable tree, suitable for the seaside or exposed situations; *C. macrocarpa*, a desirable tree for sheltered situations near the coast; *Juniperus communis*, a free-growing shrub, suitable alike for exposed situations and the seaside; *J. excelsa*, robust in growth, and well adapted for exposed situations; *J. macrocarpa*, specially suitable for cold, bleak situations; *J. phænica*, a medium-sized tree, very valuable for the seaside; *Larix Europæa*, a large tree, free in growth, and well adapted for bleak positions; *Picea grandis*, very handsome, and suitable for the seaside; *P. lasiocarpa*, a noble tree, succeeds well by the seaside; *P. nobilis*, a fine, remarkably handsome tree, suitable for seaside planting; *P. Nordmanniana*, a beautiful tall-growing tree, admirably adapted for seaside planting; *P. Pinsapo*, a most symmetrical and beautiful tree, useful for planting by the seaside; *Pinus Austriaca*, a most valuable tree for the seaside and cold, bleak situations; *P. cembra*, a free-growing, hardy tree, very valuable for the seaside; *P. halepensis*, a medium-sized tree, specially suited for the seaside; *P. insignis*, a bold, handsome tree, very suitable for the seaside; *P. larico*, a free-growing tree, best adapted for exposed situations; *P. Pinaster*, a robust tree, of handsome appearance, and extremely valuable for the sea-coast; *P. strobus*, a robust tree, well adapted for the sea-coast and exposed situations; *P. sylvestris*, the Scotch Fir, of great value for the seaside and bleak positions; *Pseudo-larix Kämpferi*, an elegant tree, very hardy, and suitable for exposed situations; *Taxus baccata*, the common Yew, a free-growing shrub, suitable for the seaside and exposed situations; *T. fastigiata*, the Irish Yew, may be planted in the same positions as the preceding; *Thujopsis borealis*, a handsome tree, well adapted for sheltered situations by the seaside; *Thuja occidentalis*, a useful shrub for forming hedges by the seaside; *T. plicata*, a neat shrub, useful for the seaside; *T. orientalis*, a free-growing shrub, useful for hedges or bushes by the seaside.

**AZALEAS INFESTED WITH THRIPS.**—*Young Gardener.*—The plants are badly infested with thrips, which has been brought about, we apprehend, by keeping the atmosphere of the house too dry and hot. Remove them from the conservatory, and give the plants a thorough good washing with the syringe or garden-engine, and take them to the greenhouse, previously removing all the plants in flower, and give them a good dose of tobacco-smoke. There are several ways of managing this, but we have never found anything better than the following method:—Take some good tobacco-paper, strip it into small pieces, and, if it is not sufficiently moist from the tobacco-juice, damp it with clean water—the object of damping it being to prevent the fumes rising dry and hot, and at the same time to keep the paper from flaring; for if either mishap take place, the leaves of the plants will be scorched, and they will suffer a large amount of injury. On the other hand, the paper must not be made too moist, or it will generate steam and do no good. The plants should be thoroughly dry, and the house shut up close, to prevent the escape of the smoke, and if there are any blinds to the house they should be rolled down; failing that, it will be advisable to throw a few mats over the roof in the case of small houses. Fill the house full enough of smoke to prevent your seeing farther than a foot from the glass. Use a twenty-four size pot, with a hole knocked in the side, and a common pair of bellows, with a few red-hot cinders, upon which to place a few pieces of dry brown paper, then a little tobacco-paper rather dry, and finally fill in with the moist paper; by this means there will be no difficulty in igniting it. To render it unnecessary to go inside, have a hole bored through the woodwork of one or two of the front lights to insert the nozzle of the bellows, and stand the pot upon a slate on the stage. It will be necessary to go inside to add fresh paper and stir it up, to keep it from burning too much in one place.





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